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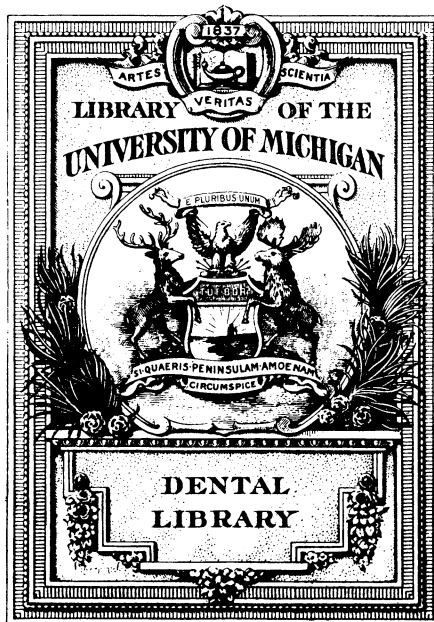
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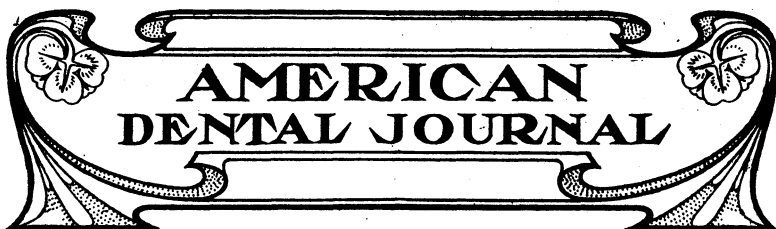
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ORTHODONTIA.

BY J. N. McDOWELL, D. D. S., PROFESSOR OF ORTHODONTIA, COLLEGE OF DENTISTRY, UNIVERSITY OF ILLINOIS.

CHAPTER III.

MAKING APPLIANCES.

Success in the construction of regulating appliances depends upon two things: proper material to make them from and the proper tools to make them with. Of course, the ability of different individuals must not be lost sight of, for some may in a short time become masters of the mechanical part, while others never fully succeed.

Regulating appliances are constructed upon the principle of mechanics and these principles involve the lever, pulley and inclined plane, and in the application of force from these principles it dissolves itself into pushing, pulling and twisting or rotating, necessitating the use of jack-screw, traction screw, arches and lever wires or other forms of appliances from which positive force may be obtained. The special requirements of these appliances should be simplicity, efficiency, and stability. Complication of appliances causes inconvenience and invites uncleanness and around the most simple appliance food will collect more or less according to the efforts of the patient to keep the parts clean from this accumulation. It is sufficient punishment for patient to wear a neat and simple appliance, and it is best not to aggravate the condition by using appliances that are crude, bulky or complicated, but to keep to appliances that are neat, simple and efficient.

Wire. It is conceded that for all-around purposes German silver is the best for making regulating appliances on account of the splendid qualities it possesses. It can be hardened or given a temper by drawing, or softened by annealing. Gold, platinum, etc., can be used if desired, but that is only a matter of individual taste.

Wire drawn by machinery and perfectly tempered German silver

wire may be purchased in pieces six inches in length at any wholesale jewelry store, (Fig. 1), any gauge, ready to make into any form of appliance desired.

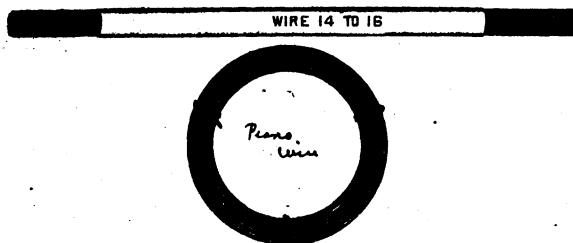


FIG. 1.

Tubing, seamless, can also be purchased in pieces three inches in length (H Fig. 2) and any gauge desired. Gauge 12 (B and S) outside diameter is recommended. The inside opening is not quite large enough for 16 gauge wire, but tubing is easily reamed out with an engine burr to size desired.

The following tools with the every day accessories of the dental laboratory will be found sufficient to make regular appliances from the prepared loose material:

1 small vise.

1 screw plate, Martin No. 36 or Dr Case's. Fig. 3.

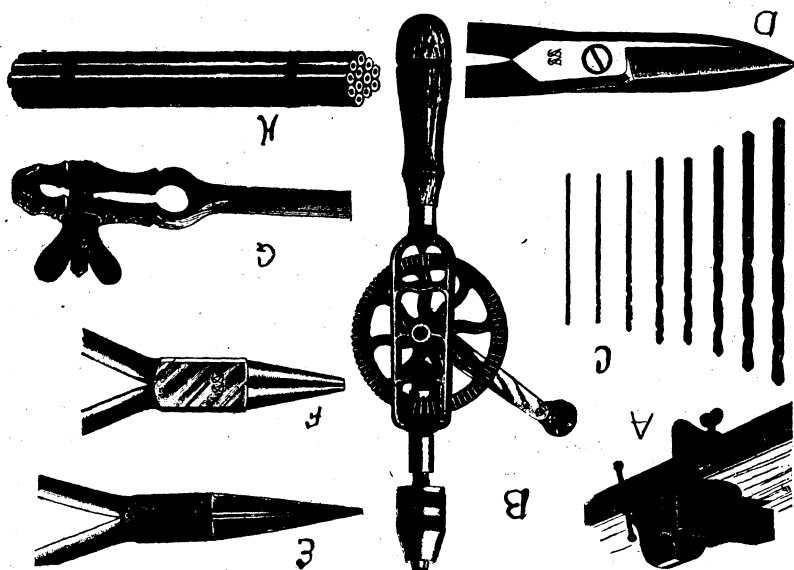


FIG. II.

1 dozen Morse drills, Nos. 57, 56, 55, 54; others if desired.

C. Fig. 2.

1 hand drill brace, B. Fig. 2.

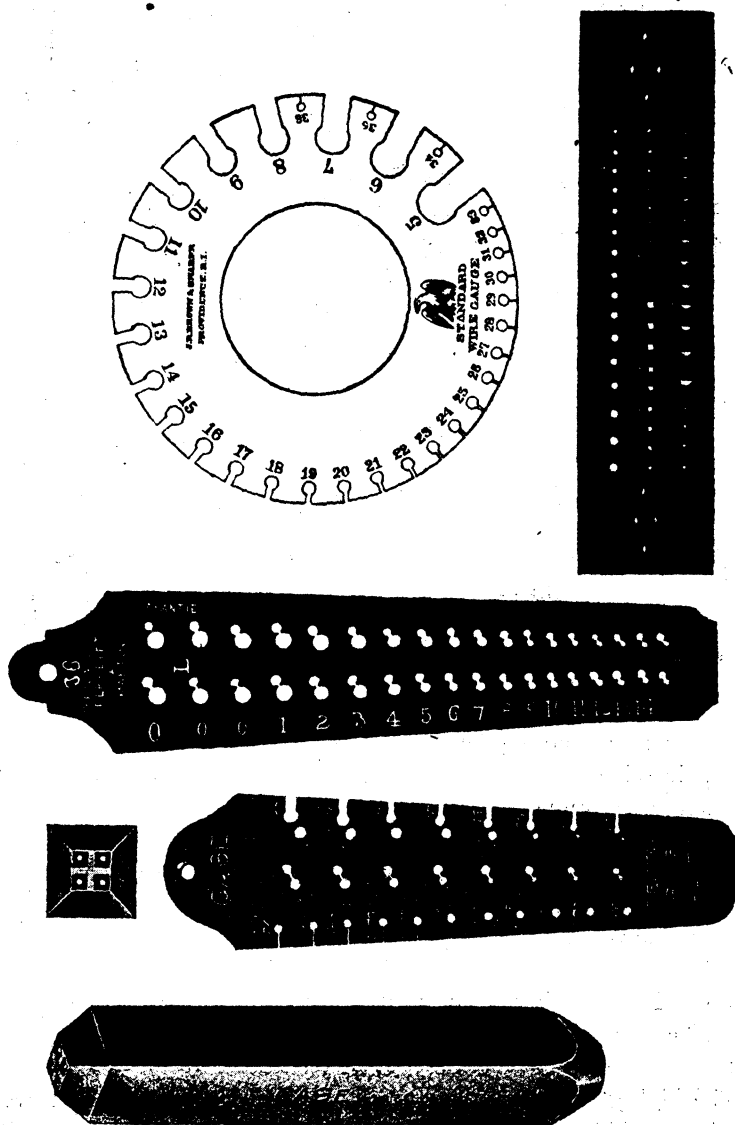


FIG. III.

1 gauge Brown and Sharp, Fig. 3.

1 blow pipe for soldering Herapath, A. Fig. 4, or the Complete or Lane's.

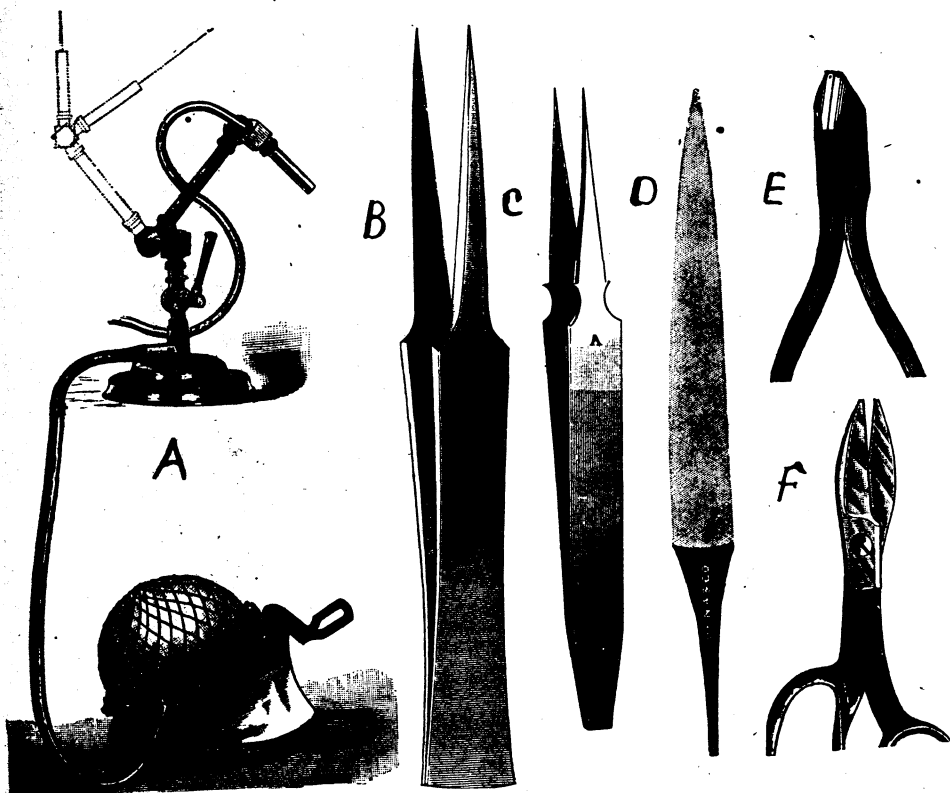


FIG. IV.

- 1 pair flat nose plier.
- 1 pair round nose plier.
- 1 pair scissors.
- 1 saw and frame.
- 1 small solder plier.
- 1 piece each of German silver wire, gauge 8 and 9.
- 1 bundle of German tempered silver wire, gauge 18.
- 1 bundle of German tempered silver wire, gauge 16.
- 1 bundle of German tempered silver wire, gauge 14.
- 1 bundle of tubing, 1 assorted, 1 gauge 12.
- 1 piece stub steel wire, gauge 14, 15, 16 and 18.
- 1 piece of square tubing for making nuts.

The high-geared hand drill brace, is a little instrument that every dentist should have in his office, whether he desires to make regulating appliances or not. It has a clutch that will take any sized drill or wire up to $\frac{1}{8}$ of an inch. The power is derived by turning a

wheel, which transmits the power to cog wheels like an egg beater. Being geared high, it drills rapidly and wire can easily be threaded by inserting the wire in the clutch and running the other through the proper hole in the screw plate.

The Morse drills are recommended above all others to use in the hand drill. Instead of being cut spear-shaped, they are cut spiral. They cut much more rapidly than the spear-shaped drill and seldom break when handled properly. They are so hard that one may be used for days without affecting it. These drills may be bought at a wholesale jewelry store or at any first-class hardware store.

TO MAKE THE TAP.

To make the tap take a piece of the stub steel wire, three inches long. Anneal one end to a bright red and slowly draw it from the flame, consuming about two minutes in annealing. This makes it very soft. Point the wire and with a file flatten three surfaces until the wire is a triangular. For three-fourths of an inch taper the filed sides back until the natural sized wire is reached. Put the wire into the vise, oil the screw plate and start it, slowly working it back and forth. Cut threads for an inch or more to get good results. After threads are cut temper very hard by heating red and dashing into water. It must be very hard to accomplish good results. They break easily when too hard, but if too soft will twist when used. By using care when cutting threads in the nuts they will last some time.

TO MAKE THE NUT.

There are several ways of making nuts, Dr. Case's method is to start holes in a nickel with a punch, then drill the holes and thread same and cut out into small square nuts with the saw. Square brass tubing that simplifies the work in making nuts may now be had at the wholesale jewelry houses and some of the dental depots. Another method is take No. 8 hard brass wire. File it down to four sides, making it square. German silver wire same gauge can be used if desired. For ordinary purposes brass nuts are satisfactory and are much easier to cut and thread. Place the No. 8 brass wire in the vise. Take the hand drill and use drill No. 56, or use the engine and a burr the correct size. Use heavy pressure and plenty of oil; as the drills are made for drilling metal they cut brass or German silver quickly.

By drilling rapidly it takes but a moment to drill a hole through or to drill the hole into the end of the wire, if the end is used by drilling deep enough two or three nuts can be made from one drilling. Next use the engine burr a trace smaller than the 16 gauge

wire. This makes the hole the right size for threading. Place the tap in the vise. Place the end of the tap in the hole drilled in the No. 8 wire and start the wire slowly around with the fingers, using oil and working it back and forth slowly. Do not be in a hurry to cut the threads in a nut. Take time and they will be cut clear and deep and you will not break the tap. Keep working it back and forth until well cut. Then cut the nut off with a saw and file or polish smooth. To make the nut correspond with any size wire use the same gauge of steel wire in making the tap as the threaded German silver wire is, for good servicable work a nut should be about 3 millimeters, or a little less than one-eighth inch long. It is a good plan to make up an extra supply of nuts. By doing so annoying delays are often avoided.

To make a jackscrew, fasten the screw plate in the vise, thread one inch of No. 16 German silver wire. Cut the wire off to leave about one-eighth inch that is not threaded, the total length complete being about one inch long.

To flatten the head of a jackscrew. Use small tack hammer and flatten on anvil. Smooth down with a file. This will give a good flat head, which will prevent the jackscrew from rotating when used. Next make up a nut to fit, and then try the jack in the mouth for correct length.

Traction screws are made just the same as the jackscrews, only that it is best to use a longer piece of wire, 2 inches, and leave the smooth end of the wire about one-fourth inch long. Then bend the end at right angle or solder a loop on the end according to the style desired.

To thread a wire arch take a straight piece of German silver wire three and one-half or four inches, as the case may demand; thread for one and one-half inches on each end. To thread (gauge 16 is the standard size), place one end in the correct hole on the screw plate. Thread one and one-half inch. Draw almost out then recut again. Reverse the piece of wire and point the other end and cut threads for one and one-half inch. It is also a good plan to make up an extra supply of arches.

Clamps. To make a clamp band. For molar or bicuspid, roll a piece of German silver band to about 34 or 35 gauge. Then cut off in lengths of one and one-fourth inches. For bicuspid, cut lengths to one inch, thread No. 16 wire for three-eighths inches. Cut off and flatten one end of wire and solder to one end of the banding material, on the other end of the banding material solder a little short tube. Pass threaded wire through tube and put the nut on.

Tubing, any size can be bought in large quantities ready made at

jewelry houses. Gauge 12, external size, is the best size for it is not so bulky, but the opening in gauge 12 is too small for 16 gauge wire; to make the 16 gauge wire fit nicely, drill out to required size with engine burr.

Ligature. Brass ligature wire, gauge 25 and 26 for ordinary purposes, and special gauge 28 can be purchased at dental depots. Silk ligature is never used satisfactorily where pressure is applied with metallic appliances.



FIG. V.

Band Drivers. In cementing bands on the teeth it becomes necessary to use force to aid the band to pass down to the proper position and to conform to the tooth. One of the best kind of band drivers is made from a worn out gold plugger; used in the automatic plugger a hard or light blow can be used in forcing a band on. The advantage with the automatic is that the operator can hold the bands with one hand and apply force with the other. A band driver proper may be made by taking a piece of steel wire, gauge 9 or 10, flatten

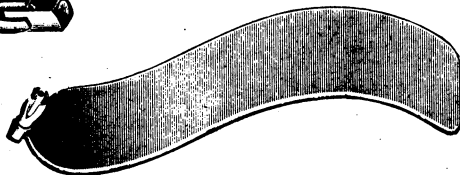


FIG. VI

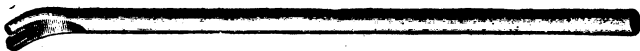


FIG. VII.

both ends to screw driver shape (Fig. 5). This to be used with the hand mallet.

Wrenches. A wrench to fit any nut can be made from steel wire. Gauge 8 or 9, flatten both ends slightly and bend to shape desired. Then with a small square edge file, file a notch to fit the nuts used. (Fig. 6).

Banding material for bicuspid and molars should be about 35 gauge.

Banding material for laterals and centrals, 37 and 38 gauge.
Brown and Sharpe gauge used.

SOLDERING APPLIANCES.

To solder well is a matter of practice and one should have the proper laboratory tools to work with. A large assortment of tools is not necessary. A few efficient tools are better than numbers. Following are the tools which the author recommends for soldering:

1 Herapath blow pipe, a Complete or a Lane.

1 pair wire cutters.

1 borax slab.

1 piece silver solder.

1 piece soft solder.

1 pair fine pointed plier

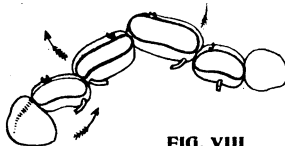


FIG. VIII.

(B Fig. 4), to pick up solder, small tubes, etc.

1 pair pliers (C Fig. 4) to hold bands, pipes, etc., while soldering.

1 pair pliers with end bent at right angle to hold ends of plain bands while soldering. (Fig. 7).

1 pair small shears, curved beaks.

1 fine file.

The Blow Pipe. To obtain the best results from a flame when soldering, it is necessary to have a small pointed blue flame to solder quickly without heating all of the appliances. The Herapath blow pipe (A Fig. 4) fulfills all the requirements needed in a soldering appliance. Another blow pipe the author recommends is the "Complete" blow pipe. It is a good one and not so expensive. *Caution:* When soldering with a blow pipe be sure and keep up a continuous blast of air while the appliance is in the flame. To allow the red gas flame to play on the appliance coats it with a layer of soot that prevents the solder from flowing properly. Do not overheat.

Pliers. It is necessary to have at least two pair of delicate pliers, one to pick up solder, small pipes, etc. The tips of the soldering pliers should be bent at right angles to prevent absorbing too much of the heat from the delicate flame. They can be bought or can be made from jeweler's pliers by heating the points then bending the points at right angles while at a cherry red; do not try to bend while points are cold.

Position In Soldering. To keep the parts firm in position when soldering always have a rest for the elbows. Prior to passing the piece into the flame, touch at least two of the fingers of one hand

against the other. This gives a good, firm position for soldering, and the operator has perfect control over the parts being soldered. To solder correctly is a matter of practice. The soldering of every part of regulating apparatus should be done with pliers. Never resort to investing unless the operator finds it absolutely necessary in the case.

Solder. In soldering always use silver solder (of gold if desired) for everything, except when soldering soft spurs on the arches or on the lever wire or making attachments for lever wires; then use soft solder to prevent destroying the temper of the appliance. In soldering with silver, use plenty of wet cream borax. Many failures in soldering come from insufficient use of borax, and instead of the soldering flowing freely in oxidizes, sticks a little and after an appliance is cemented in the mouth and force is applied, the appliance separates as a result of improper soldering.

Making and Soldering Plain Bands. The ordinary plain band for practical cases should always be made from measurements made from the natural teeth. It is impossible to make satisfactory bands on a plaster case to fit the natural teeth. To make the plain band for anterior teeth use banding material 37 gauge annealed; pass a strip of banding material around the tooth, burnish the band to conform to the tooth, then with a pair of smooth, flat nose pliers pinch the band up close to the tooth on the labial surface. Pinch several times until a square joint is made. Bands pinched carelessly, leaving a large round V-shaped opening are useless and usually come off in a day or two. To solder the band, place a piece of the solder protruding into the inside circle of the band. With soldering pliers, the tips bent at right angles, grasp the pinched ends close to the band. Allow the flame to play upon that part of the band to be soldered. Practice keeping the flame from touching any other part of the band when soldering, for when soldering on pipes, spurs, etc., if the flame is allowed to spread all over the band, the joint on one part may come unsoldered while soldering another part. Always leave a little of the end in the plain band where pinched together to hold it with when soldering spurs, pipes, etc., until the band is ready to put on; then cut off soldered end, leaving it about one-sixteenth inch on the anterior bands ready to cut notch in the solder ends for the arch to rest in.

Spurs for Rotation. A spur for rotating, if for use with ligature wire over the wire arch, take a piece of wire 21 gauge. File

end at angle of 45 degrees. Flow solder on band, holding the soldered joint with a pair of pliers; place the wire on the band so it will form a V-shaped space close to the band. The angle of this spur will prevent the ligature wire from slipping off when pressure is to be exerted for rotating. The spur should be cut to the length of one millimeter. Fig. 8 shows correct position of rotating spurs.

Spurs and Wires for Retainers should be all soldered about the same way. First flowing solder on band and protecting the soldered joint with pliers and heating the wire first and soldering on in the direction desired.

Soldering Tubes on Plain Bands. For traction screws, jack-screws, lever wires, etc., grasp the band at the soldered joint with pliers. Flow a little solder at marked place. Then with pointed pliers grasp the small tube, one end of pliers in the tube and one out, on the side opposite to the one that is to be soldered. This prevents the pliers being soldered with the tube. Heat the tube red first, then solder to the band.

Soldering Tubes on Anchor Bands Plain for the use of wire arch traction screws, etc. Mark the band for the direction of the tube in the mouth first. Grasp the soldered part of the band with heavy pliers to protect. Flow solder on the marked place, then grasp the tubing with the fine pliers, one end inside of tubing. Heat the tubing red, then pass all into the flame and solder.

Soldering Two or More Bands Together. It often becomes necessary to solder two bands together for retention, anchorage, etc. When two bands are to be soldered together, care should be used, first, in making the bands, to pinch them just as far from the point to be soldered as possible. Grasp the bands with the right angle pliers, ends of pliers on inside, flow a little solder on one band first. Use fine flame. Pass into the flame and solder. It may be necessary to unsolder and resolder several times to secure proper position.

Soft Soldering is an Art Itself. The reason for so many failures in soft soldering in the first attempt is the result of a constant use of a hot and continuous flame as used for silver or gold soldering. Soft soldering needs only a mere breath of hot flame to flow it correctly. Before attempting to soft solder on a regulating appliance, first solder a few spurs or pieces of wire together on tempered German silver wire, until the soft solder flows pure and white and the temper of the wire is uninjured. In the first place, soft solder should never be used on appliances where direct heavy pressure

will be brought to bear on it; for example, never use soft solder for soldering tubes on anchor bands for the wire arch or for the traction screws, or spurs on bands for jackscrews or for rotating. Its use is limited to delicate operations, such as spurs on the wire arches, or on the sheaths of the traction or jackscrew, and some operations where only the temporary use of an appliance is needed.

The flame for soft soldering should be a faint, delicate blue flame. Never try to soft solder with the blow pipe without the use of air. A small red flame coats the surface of the wire with black that prevents the soft solder from flowing, and a heavy flame will not only oxidize the soft solder and prevent it from flowing but it will destroy the temper of the wire. A small alcohol lamp can be used to advantage in soft soldering. If a piece of soft solder has been overheated and granulates on trying to solder it again, cut this part of the solder off and file the surface bright; then use new flux and a new end of the solder.

Flux. The cleanest flux to use for soft soldering is the ordinary cement liquid. The two parts to be soldered are to be touched with the liquid before passing into the flame. To solder a spur on the wire arch for moving the teeth forward on one side or around to one side, place the arch in the mouth, mark the place, remove, dry off and then wet the place with cement liquid. Take a piece of jeweler's soft solder; it comes in lengths of five inches. Wet the end with flux, pass the arch into the heat of the flame first, then follow with soft solder. Keep the fingers of the hands touching. Soft solder flows so quickly that but a moment is required for heating. Remove the instant the solder melts, keeping the parts together by keeping the fingers together. The solder should flow with a bright white surface; if any other color it means that the solder is partially oxidized and is poorly attached. This whole piece is now soldered to the wire. Cut off about one-half millimeter in length and file smooth. Then notch where desired.

For larger spurs for the use of rubber ligature or small pipes for temporary use, wet each piece with flux and flow the solder on the longest piece to be soldered first. Then solder the other part to it. If it is a spur on the arch for the use of a rubber ligature for drawing down a tooth, use 21 gauge German silver wire. Use a piece several inches long so it can be held in the fingers while soldering. Then cut it off the desired length after soldering.

PROSTHETIC DENTISTRY

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University of Illinois.)

CHAPTER XXIV.

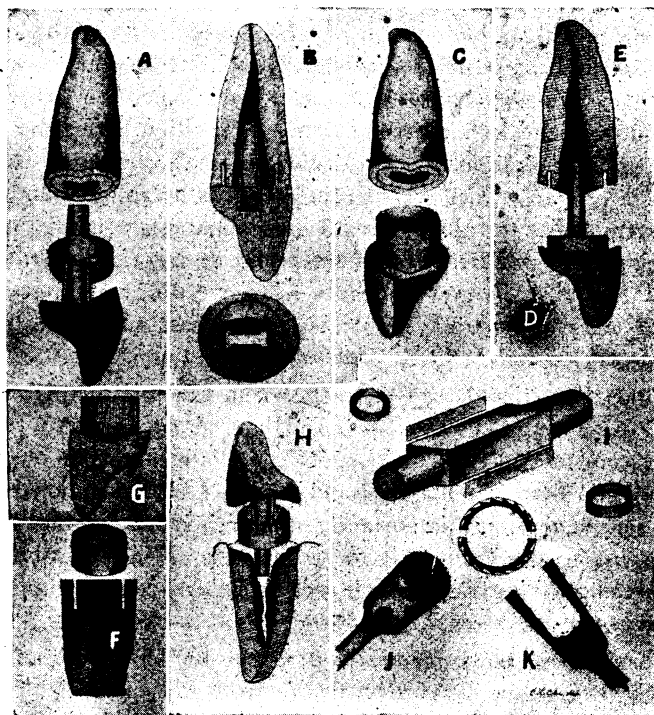
Dental elimination or extraction of teeth—the antonym of dentistry—has been placed within the realms of oral surgery, and is not a part nor has it any relation with the true meaning of dentistry, which if it means anything must stand for a purpose diametrically the opposite.

No less than five of our most recent dictionaries, and nearly all of the dental text-books which have come from the presses since the Columbian Dental Congress, have placed this construction on the word dentistry, and it is to be hoped that in the very near future we may have not only a clear understanding of the word, but our literature may be crystallized into a medium of mental exchange, so as to be a channel through which we may safely send thoughts on any subject pertaining to our vocation without fear of misconception. In every calling we are conscious of a needed change, and when we shall have effected a complete system of dental nomenclature we can be reasonably certain that more rapid progress in our special field of medicine is assured. While we are all anxious for this day to arrive, we can contribute our quota towards effecting this grand result by lending such assistance as is possible and communicating our deductions to the various committees who have the nomenclature of the profession in charge.

Since there is not at present an accepted terminology in any of our divisional specialties, it is our right and opportunity to enter into the coinage of new words or classification of the old or modification of either, but it is with some reluctance that I present to your attention the words "intradental" and "circumdental" bands, and in relation to them some few other terms. As there were no words in our dental vocabulary which even approximately covered the ideas involved, I searched about and finally decided that these compound words would clearly designate the purpose of their dental use.

Dental surgery may be divided into two grand divisions, namely, the branch of prosthesis and the branch of aphaeresis. The former means to add, to restore, to replace, or to affix; accordingly it implies

nearly all dental operations, since for little else is the dentist called upon; while aphaeresis denotes to take from, to omit, to remove, to subtract or to sever.



As dental surgeons we are interested in both these branches; but as dentists we are concerned mostly in the prosthetic, since the major portion of our work is of a strictly prosthetic character. But in order to accomplish prosthetic results our initial work must inaugurate the aphaeretic branch. In the preparation of a cavity for gold we labor in an aphaeretic sense, in that we remove defective enamel and dentin. If we crown a root we again resort to the same branch, when we trim down the cervical borders and shape the joint-end, and when we fill the pulp-chamber and canal we likewise engage in aphaeretic art, in removing the pulp. But this is only partial aphaeresis, while the complete indicates that the tooth or teeth have been extracted. And it is the purpose of my paper to advocate dental prosthesis in its fullest meaning, and I hope to emphasize that as dentists dental preservation is our distinctive function, that

before resorting to the use of aphaeretic tactics we must have exhausted our complete supply of prosthetic devices; and I intend to give a method whereby the most hopeless root can be restored to usefulness in retaining some form of dental substitute.

In some mouths there is considerable space between the dental organs and their approximal surfaces do not come in contact, and in these mouths the alveolar ridge and maxillary bones are well developed and hold the isolated teeth firmly in position. But the teeth as we generally find them, and as they normally ought to be, are slightly in touch, yet each as independent of its neighbor in its functional character as though the masticating apparatus consisted of but a single superior and two inferior teeth or vice versa. To avoid applying bridgework in every instance when we can, and insert individual crownwork instead, should be the earnest and indefatigable effort of every member of the profession.

The intradental band, as I have chosen to call this method of restoring and strengthening roots which are about to carry full or artificial crowns, can be employed to good advantage in many of the prosthetic dental appliances; and though I shall mention in this paper some of the more important uses which it has, it shall be my real purpose to confine myself to its merits as a factor in building up and strengthening roots which seem hopelessly decayed and suggest the use of the forceps.

The band, as its name implies, is placed in the tooth substance immediately within the cervical circumference and in partial crownwork at a point midway between the cusps and the neck of the tooth. The width of the band depends entirely upon what process of dental retention is desired, but in most cases it is seldom more than an eighth of an inch wide and generally made of gold or iridioplatinum, about 30 gauge. The band in all instances is anchored into the root by means of cement, and need not necessarily form a part of the crown proper, but may be set independent of the latter.

The instruments for accomplishing these effects are simple and their application readily understood. The set or system consists of two trephines of sizes usually desired for banding the ten anterior teeth, and a gauge-mandrel which has two stumps the exact complement of the trephines. It is intended to band a root of the size of the large trephine, the gauge-mandrel indicates on its side nearest the large stump the exact size of the gold necessary to fit the selected trephine. The trephine is so constructed that the face of it

is slightly larger than its body; this allows the instrument to cut without pinching; it has two large slots in its circumference, admitting of the steel yielding in the event of uncertain leverage; and the teeth of the trephines are modeled after those of the log-circular-saw, and the small grooves leading from the teeth permit the sawdust to escape without clogging the instrument. It requires but a few revolutions of the trephine to effect a perfect intradental groove. Figs. I, J and K.

The ferrule which all operators now produce, and which surrounds the necks of the teeth, I have designated as the circumdental band, such as we have in the Richmond Crown. Practitioners have recognized long since that the circumdental band is not an ideal appliance and that it has features which make it undesirable, and among these demerits we mention that it constricts the intradental space; that it impinges on the living tissues; that it is unsightly and contrary to dental esthetics; that it induces pain, that it is too easily broken; that it quite generally affords lodgment for food, and in turn harbors pathogenic organisms.

There is a maxim in general mechanics that "a chain is no stronger than its weakest link," and this is most applicable to the construction of crowns. Notwithstanding that the Richmond Crown is an esthetic dental appliance, there are innumerable defects which induce us to look about and design new ideas, in the fond hope of obtaining a crown which may approximate nature and yield hygienic and physiological results equal to the demands.

In assembled-crowns, as I prefer to call bridgework, we must admit that the Richmond occupies a place which cannot be substituted by any of the several crowns now in use. This fact is due primarily because it is a combination crown, constructed of porcelain and gold, the latter acting as a medium to which can be readily soldered the adjoining artificial teeth; but I am of the opinion that porcelain dental art will in the near future be in full possession of the domain now controlled by it.

For individual crownwork I am becoming more convinced each day that the porcelain is the nearest representative of nature, and when it is attached by the method I here suggest it cannot be other than a most excellent dental substitute.

I fully recognize that it requires no small amount of courage to assail the Richmond crown, since it is quite established in dental mechanisms, yet a sense of conscientiousness impels me to say that

I am losing faith in it for individual restoration. Other operators present will, I hope, candidly acknowledge their adverse experiences and freely and fearlessly criticize my paper, since it has been written with a view of learning from the practitioners here assembled the true status of crown-prosthesis in Iowa.

In setting the Logan with the intradental band, you first trim down the root, Fig. A, up to the alveolar process, and then proceed to grind and adjust the crown to the root. Then select the proper size of trephine, place same in the handpiece, and with a few rapid revolutions of the trephine the intradental groove is produced. Now make a gold band complementing the respective trephine-stump on the gauge-mandrel, and after soldering the band and trimming off the rough portions, you are ready to set the band with cement. But before setting same it is well to put a plug of cotton in the root canal to prevent the cement from filling up the canal while attaching the band. Mix the cement to a creamy consistency, add cement to the two surfaces of the band, and register it over the trephine groove, then press it home, Fig. B. Let the cement thoroughly set and with corundum stone grind the band even with the trimmed face of the root.

The next step in setting, so as to attain enduring success, is of great importance and must be carefully executed. Place a small amount of oxyphosphate on the post, and paint the joint end of the porcelain with a film of chloro-rubber, the latter being produced by adding chloroform to red vulcanite in a sufficient quantity to make a thick paint. Having thus prepared the crown, and having protected the root from moisture, insert the post and gradually bring the crown into the desired position. Instead of the chloro-vulcanite I frequently employ a disk of gutta-percha, heating the crown with the latter and then applying the requisite cement. This method has been advocated by many operators. I have found that chloro-rubber is fully as good and possibly better for this particular service in that it can be handled with greater ease and does not become aged as soon. By setting the crown in this manner permanent operation is accomplished. The cement acts primarily as an anchor for the crown, while the chloro-vulcanite serves to make an absolute joint and protects the cement from the ravaging influences of the acids of the mouth.

When I attach an individual Richmond, I anchor it on an intradental band, Figs. D and E. The method of construction is simple

and free from the technicalities accompanying the old method. When constructed with an intradental band, the latter and its cope may be made of platinum, since this metal admits of being closely fashioned to the root and makes a perfect joint. The crown is then made as usual and is set by the method before described.

The Richmond may be made with the intradental band acting as a hollow post, Fig. C, and this method has some few advantages, namely, the circumferences afford extensive surfaces for cement attachment, the latter clinging to the external and internal surfaces of the band; and should there arise any apical difficulties the case can be treated interdentally, since access to the pulp-chamber can be readily had, there being no obstruction in the form of a post.

The use of the intradental band is not limited by the several operations which I have detailed; it may be employed in many cases and with considerable satisfaction in crowning a root which has been fractured, Figs. F and G. The following description from an article by Dr. H. J. Goslee is valuable, coming from one who has had an extensive experience with crown work: "While the intradental band as used and advocated by Dr. Cigrand may no doubt have a place of usefulness and possess many virtues, its successful application in a particular instance has enabled me to obtain a result which should no doubt mark it as almost invaluable in similar conditions.

"The case was that of the root of an upper left central incisor which had carried a crown and the adjacent lateral for some time, but which from strain and poor protection of the circumdental band had become badly fractured, divided or split longitudinally into two parts. The labial fragment extended from the face of the root to about the apical third and was perfectly loose, being retained only by membranous attachment. It was very desirable to retain this portion, as its loss would virtually destroy the usefulness of the root, necessitate the extraction of the same, and indicate using the approximal sound teeth for the purpose of bridging; hence was suggested to my mind the use of Dr. Cigrand's system of intradental band.

"I first retained the loose fragments in position, tightly twisting silver suture wire around the neck of the root, high under the gums. This held the parts firmly in apposition, after which I proceeded to trephine the intradental groove into the densest portion of the root; then the band was carefully fitted into the groove and ground down

smooth with the surface of the root. The wire was then removed and the parts were found to be held very rigidly together. The root was then crowned with a peripheral band and is now carrying the bridge so very successfully that I am gratified in attesting to the usefulness of the intradental band in at least this particular."

When the root, be it in any of the anterior six teeth, presents conditions as outlined in Fig. H, a circumdental band is contraindicated, since the root is decayed down to and even below the alveolar process, and in consequence the circumdental band cannot be fastened to the other circumferences of the root. In such a case the intradental band will most excellently fill the want, as it can be used both as a band to strengthen the root, and also to serve as a skeleton around which to build the material with which to restore the general contour of the root.

If the root is one of the anterior teeth and it is desired to attach a Logan, a trephine of the size indicated is selected and the groove cut into the root; then the band is made to fit the groove and the band is of sufficient width to allow it to reach the top of the intended metal contour. Before cementing it into position cut into the free end of the band several incisions, thus making fimbriations on the metal. Now by means of cement anchor the band into the groove with the fimbriated end extending, and subsequent to the setting of the cement. Build up with amalgam to required outline, bending the fimbriations in such a manner as to clinch the amalgam as you add it to the mass, tipping one metal point toward and the other from the center of the root. The patient may now be dismissed to call again in a day or two, when with drills and burrs an opening is effected into the amalgam to correspond to the position the post will occupy when the crown is permanently set. If it be desired to build up a badly decayed bicuspid root, and it is intended to carry a gold telescope crown, the method of procedure is similar to the one just described, differing only in that the intradental band is much wider and some few holes are punched or drilled through its surfaces to afford further anchorage for the amalgam.

It has been my pleasure to have employed this system in various ways during the past few years, and many operators in neighboring states have adopted it as productive of excellent results, and I earnestly hope that methods which are intended to save and restore badly decayed roots may receive your consideration.

(To be continued.)

OPERATIVE DENTISTRY

By R. B. Tuller, D. D. S.,

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CHAPTER XXIV.

Preparation of Roots for, and the Fitting of Caps and Crowns.

It goes without saying that the first thing in the way of preparation of roots to be utilized for crowns, is to put them in a healthy condition, if not so, and fill the root canals. This sort of preparation is elsewhere described and need not be repeated here, except to say that where a pin is to be placed in a root, only the apex need be filled, since more than that would have to be removed to make place for the pin and the cement that is to fill around it. This apex filling should be done previous to the setting of the crown pin, and not depend on the cement used for that purpose, since in the first place the apical end should not be left open during the shaping and fitting, and in the second place the thrust of the pin might force the cement, a decided irritant, through into the apical space and make trouble.

The preparation here under consideration is the cutting off and shaping of roots for the fitting of caps or crowns. If it is a gold crown that is to be placed, the circumference of the root must be reduced until its several sides are parallel, or taper slightly outwardly; otherwise the encircling band of gold would touch the root at its largest portion only and leave a space beyond which cannot be healthfully tolerated. The crown, or band, would have but a poor hold, and the edge of a crown standing away from the root ever so little produces perpetual irritation of the tissues in contact. The same applies to coping bands used in setting some kinds of porcelain or porcelain faced crowns.

There are several ways of trimming the root to the proper shape. In most cases the portion to be removed is the enamel at the neck of the tooth, and it is only necessary to split it away from the underlying dentine to get nearly or quite the correct shape. This is best done with what are termed enamel cleavers, which are made both chisel shape and draw-cut, the chisel having a thick shoulder behind the blade, which striking on the end of the root as the enamel splits off by either force of hand pressure or light malleting, stops the forward impulse and prevents the chisel from

going too far and jamming into the gums with each thrust. In the hands of one familiar with the use of it, this style of instrument is one of the most rapid and least painful of anything used. With a draw-cut instrument one must crowd the gum away in a more or less painful way to permit the blade to go up far enough to take hold on the enamel, the same movement being repeated usually several times in the same place before the cutting is complete. In one instance the enamel is scraped off with the draw cut; in the other it is easily split off complete by a steady rocking sort of hand pressure, or by light blows with the mallet. Little force is required and with a guard or shoulder on the chisel, as described, the forward motion is limited to probably not more than the sixteenth of an inch, and the cleavage is very clean, requiring but little, if any, further trimming to make it ready for measurement.

Measurement is usually taken by the use of small soft binding wire, a loop of which is slipped over the end of the root and held to place while the two ends are twisted together until the wire fits closely all around. Now, to get the measurement of the band used for shell crown or coping, as the case may be, it is only necessary to cut the wire, straighten it and mark its length on the strip of gold to be used. This done the strip is bent into a circle and the two ends made to fit together perfectly. This is done easily by first paralleling the two edges and then passing a very thin separating file between them while pressing them together, leaving square edges butting squarely against each other. If both edges are thus filed just a mere trifle, they should butt together evenly along the entire joint.

Now, there is no better way to solder this joint than by sweating the edges together—with no solder at all. This should be done in a low flame which will barely do the work, since a hotter flame sometimes melts the metal before one realizes it. Sweating is the first stage of melting, hence must be watched and removed from the flame on the very instant that the edges are united, which can be easily noted the same as when solder melts and flows. The edges of course must be in absolute contact the entire length of the joint, as any gap, ever so narrow, will not unite. A band united in this way without solder will never open in the further soldering on of the top as sometimes occurs when solder, even of high grade, has been used at the joint. The top may be sweated on as well, providing the fitting—the contact of all parts to be joined—is perfect. This, however, requires a considerable more dexterity and experience than sweating a

simple band joint. A fraction of a second too long in the flame goes beyond the sweating point and melts through at some point hotter than another; while in the joining of the band the heat is more surely equal throughout the part to be joined.

The band being made it is then adjusted to the root. If perchance too loose, it should be cut at the joint and then a trifle clipped off or filed off to shorten the circle, when the joining should be done as before. If the fit is a little too tight, which is preferable to being loose, it is an easy matter to either stretch the metal or with a round or half round file, file out a little of the inside of the band. When the band is fitted the next thing is, in shell crowns, to adjust its length in regard to occlusion, take the bite with band in position and then strike up and adjust the top or cusp portion, all of which hardly comes under this head, and to practicing dentists the procedure in one way or another is known.

If the band which has been fitted is for a coping, the outline of the root should be marked on the inside with a sharp point and band removed and cut to that line. Readjusted to the root it should be accurately ground to the end of root. It is now ready for the top which should be a thin piece of pure gold or platinum, and should be soldered on with a very small quantity of solder. The reason is that a surplus of solder fills up the corner made by the band and top, making it rounded, instead of being square, with the result that unless the corners of the root are rounded off accordingly the band or completed cap will not go on as far as it is important it should go. The cap now complete is adjusted and driven up as far as it will go and the metal over the end of the root is then pressed and burnished into all the inequalities of the end of root. It is now ready for the insertion of pin, which must, of course, have been previously fitted to the canal. Puncturing the cap at the indicated canal opening the pin is pushed through and up to place but not too tightly; since it must be so that it will come away easily with the cope after the projecting end of pin has been secured to cap with wax. A pin of platino-iridium is better than one of pure platinum on account of being stiffer and stronger, and it should project a little through the cope. Cope and pin should now be removed and soldered with very little solder. Too much solder around the pin often prevents the cope from going to place unless the canal opening is counter sunk a little.

The cope is now ready for the adjustment of the facing, which if cope has been made right and facing ground properly should leave **no exposure of gold at the neck at the labial aspect.**

A facing which is to be part of a Richmond or above described crown, has of course, to be backed up, and it may often be possible to adjust it to the cope in the mouth with sticky-wax and, if the cope and pin come away easily, the whole thing may be removed, invested and quickly soldered up to a finish. Or, the cope in position, an impression and bite may be taken, from which plaster models may be made, after the cope is taken from root and adjusted to its place in the impression wax. The fitting of the facing and arrangement of cusps, if a side tooth, can be done on the models.

Several facings may now be found in supply houses with backings made for them so arranged that should a facing be broken in use in the mouth, in case of a single crown or in a bridge of many teeth, a duplicate facing may be secured and adjusted with cement without removal of the denture from the mouth. As facings do break frequently it is quite an advantage to be able to replace one in a very few moments as good as it was before, and with little trouble and inconvenience to the patient.

There was a time, a few years ago, when a consensus of opinion of the best authorities on crowns favored banding all roots used for crowns, claiming it was essential to strength and firmness and tightness of joint; but bands are detrimental to the gum tissue, even when closely fitted to the root, and eventually the gold shows, and many operators now set porcelain crowns without any cope or band to avoid the evils which time has developed concerning bands, and splitting roots are not so much feared when perfect joining and pin fitting have been secured. It has been the contention of the writer for a number of years that, in a great majority of cases, where roots are good and healthy (not weakened by decay), a fitting of a porcelain crown may be made so perfect, together with a pin made to fit the interior of a root perfectly, that we have no more danger of a splitting root than of the tooth breaking when it was as nature made it.

No joint can be made close enough by the usual grinding, but when that has been done as close as may be, soft gold foil folded over and over on itself until there are from 64 to 128 layers, may be punctured and slipped on the pin and pressed hard between the porcelain and the root. This gold should now be made cohesive by annealing and then trimmed to the outline or near the outline shown by the root. Pressed again to place it may be burnished all around the joint. If all else is ready the crown may now be cemented to place and all excess possible pressed out, the least cement possible between the gold and the root. The crowns of this kind that fail and split roots are those that are not well fitted. Cement between

the porcelain and root cannot be depended upon unless the adaptation is close. The closer the better. The pin used must have stiffness better than pure platinum, and if a square pin the four corners must be in contact with the canal walls all the way up. A square pin is better than a round pin for the corners can touch the canal walls and yet have a little space for cement. The cement is there to close up spaces, and to retain the pin and crown, not to take the stress and strain. When the pin is loosely fitted and the adaptation not close between root and crown, the cement filling the spaces has to take the strain and it will rarely hold out under such conditions any great length of time. A brick wall where the mortar or cement is, in a thin layer between the bricks is much stronger than a wall with the cement in a thick layer.

There are now in the supply trade a number of porcelain crowns with removable pins that are very good. As the pin is not baked in the crown, as a Logan is, it may be made very much cheaper, the pins being, if one likes, German silver or nickel silver.

If a crown with a removable pin is used, there is no necessity of heating up the porcelain with liability to check in soldering; and if one gets broken it may easily be replaced with a duplicate that fits the pin as did the original. Robert Brewster of Chicago makes crowns of this kind especially well adapted to both single crown and bridge work. They have the all-porcelain effect and are yet very strong; and if one does break a duplicate may be readily adjusted in the mouth.

Of course it is understood that where a root is not banded there is no necessity of removing the enamel. It is simply cut down and shaped otherwise as desired. If it is desired to show no gold at the joint the root should be cut labially above the edge of gum, but the line is so small, if fitting has been done properly, that there is little if any objection to it if it should be visible. Crystal mat gold may be used in some instances instead of the soft foil, to make the joint close.

Reference was made in the last issue to a new substance, a combination of porcelain powder and cement, which may be used by those who bake porcelain to fill in between a crown and root. The root must be oiled a little so the cement may harden without sticking to it. It is then taken with the porcelain and baked, when it becomes as hard as other porcelain and a part of it. It shrinks a little and in consequence the fitting with a little fresh material added and baked two and often three times, is necessary. When done, however, it is ahead of all else.

(To be Continued.)

DENTAL THERAPEUTICS

(By Geo. W. Cook, B. S., D. D. S., Chicago, Ill., Professor of Bacteriology and Pathology, University of Illinois, Professor of Oral Surgery, Dearborn Medical College.)

CHAPTER XXIII.

In the discussion of the subject of the alkaline salts we have called attention to certain peculiarities which belong to the inorganic salts and some of their therapeutic values. They are peculiar in that they enter into and become a part of the proteid molecule, or if they are not a part of the proteid molecule they have peculiar physical activities which cause certain changes in the proteid molecule, in a way that produces its reproductive powers, provided that the solution of the inorganic salt is not so concentrated as to cause the regenerative processes to continue in living substance.

Along in this category of agents there is to be found a substance known as ammonia (NH_3). This gas is a by-product usually obtained in the manufacturing of coal-gas. In combination with an acid it acts as a base, in as much as it produces a salt. The solutions of ammonia and carbonate of ammonia are the compounds most commonly used in therapeutics. A watery solution of ammonia is usually 28 per cent. of gas in water. It has a pungent, irritating action when brought in accessible relation with the skin or mucous membrane when applied to the surface, or when brought in sufficient range of the nose the gas is readily inhaled and produces practically the same symptoms as when the solution is applied directly to the mucous surface. Ammonium carbonate ($\text{NH}_4 \text{HCO}_3 \text{NH}_2 \text{CO}_2$) acts very much in the same way as does the watery solution, although it is not as rapidly evaporated, in other words, the gas is liberated more freely from the water than it is from the carbon compound; therefore, the watery solution is more irritating than the carbonate. The volatility of ammonia makes it more penetrating and very much more easily absorbed than the fixed alkalies, consequently it is much more irritating and its action is much more transitory than the other alkaline salts. When applied to the surface of the skin or mucous membrane in anything like concentrated solutions, it has somewhat the same corrosive tendencies, although not in such a marked manner as does the inorganic alkaline salts, especially like those of the hydrates. When inhaled, the irritation of the nasal mucous membrane, owing to its stimulating the vaso-motor centres, causes contraction of the arterioles and through its reflex action causes increased blood

pressure, and at first the respiration becomes somewhat deeper and slower. It might be said in this connection that the heart is sometimes much slower than at others, due to the inhibitory reflexes.

When concentrated solutions are taken by the mouth the esophagus and stomach seem to be acted upon very much in the same way as the strong alkaline compound. When the gas is inhaled in any quantity the glottis and the mucous membrane of the larynx and trachea will, if continued for any length of time, induce asphyxiation, thus causing sudden death.

After ammonium carbonate has been absorbed it rapidly changes into urea, therefore, it is less active in rendering the blood alkaline than the other alkaline salts. The carbonate of ammonia is noted for its power of stimulating the central nervous system, especially when it is injected into the circulation. There has been considerable speculation as to whether it really has any action on the nerve centres when taken by way of the stomach.

The aqueous solutions of ammonia are not commonly used, although various combinations of ammonia have been recommended in certain forms of kidney diseases and certain diseases of the genito-urinary tract, especially where cantharides could not be administered. Ammonium liniments have been used as rubefacients in bruises and other similar injuries. Ammonium carbonate finds a useful place as an agent to be inhaled in such conditions as collapse and fainting. Its action here is to cause reflex stimulation of the medullary centres. The so-called "smelling salts" so frequently used in such conditions is ammonium carbonate flavored with a strong solution of oil of lavender.

The so-called aromatic spirits of ammonia are used as slight gastric stimulants in debility, flatulence and alcoholism, and for the last named condition it seems to have very excellent influence for at least a short time. Two grain doses of ammonium carbonate is frequently used as an emetic and great claims are made in its efficiency over that of other emetics, especially, for instance, tartar emetic.

Ammonium carbonate and the spirits of ammonia are frequently administered in sudden collapse and heart failure. As has previously been stated, it was one time thought that it acted directly, when administered by way of the stomach, on the cerebral nerve centres; but later observation has determined that the action is a reflex one due to gastric irritation. This agent has also been intravenously and subcutaneously injected for the purpose above men-

tioned, and it may be said that in this method of administration there is the advantage of the reflexed local irritation re-inforced by the direct action of the medulla. Those who are familiar with the action of this agent are reminded that its effect is rather transitory, but is sufficient many times to carry the patient over an acute collapse. The aromatic spirits of ammonia has been a favorite remedy for a long time in such cases as above named, and is usually administered by the mouth or is inhaled, and its effects are due more to its gastric irritation than its effects on the central nervous system. The carbonate of ammonia is added to the expectorant remedies, where such remedies are indicated, and it has the effect of stimulating the respiratory centres and rendering the bronchial mucous more fluid.

Ammonium and its various combinations have been used and highly recommended in various forms of poisonous snake-bites, but it is a question whether it has any very beneficial effects on the poisonous properties of snake venom.

Ammonia is one of the essential agents to have on hand when from any cause there is a likelihood of there being a collapse, and many people are so familiar with their condition that they carry with them a bottle of smelling salts. In cases of collapse following the administration of nitrous oxide gas, the administration of a tablespoonful of brandy with the application of ammonia for the purpose of inhalation will usually revive the patient in a very few minutes, and seems to be all that is necessary in ordinary cases of collapse. In the frog, ammonium chloride has a peculiar, paralyzing influence on the motor nerves and produces many of the general symptoms on this animal as does strychnine, although in strychnine the spasms are much shorter. The muscular action produced from ammonium compound, for instance, the chloride, acts somewhat in the same way as potassium, with exceptions in case of ammonia in the early stages the irritability of the muscles is very much increased.

Ammonium salts apparently penetrates the tissue cells somewhat in the same manner as does the salts of the alkaline series, and ammonium chloride is much more rapidly absorbed from the stomach and intestines than is sodium or potassium chloride; and observation has shown that they permeate the blood cells with greater freedom and rapidity than the above named salts. Ammonia is rapidly changed to urea and is usually excreted from the body as such, especially if administered in the form of acetate or carbonate. When urea is formed from ammonium chloride hydrochloric acid is liber-

ated in the tissues, and if it were not neutralized by the ammonia being formed in the tissues themselves, hydrochloric acid would have a poisonous tendency in the tissues which, as has just been said, is neutralized by the ammonia. It is then excreted from the body by way of the urine.

The formation of ammonia in the tissues always has a tendency to draw from the protoplasmia nitrogen, which would have formed urea; thus the result in the urine of urea is but little increased, still ammonium is excreted by way of the urine.

As we have previously stated, ammonium acts in the body very much in the same way as does the alkaline salts of sodium, potassium, etc. We will append here the various combinations:

Liquor Ammoniaë Fortis (B. P.), 32½ per cent. by weight.

Aqua Ammoniaë (U. S. P.), Liquor Ammoniaë (B. P.), an aqueous solution of ammonia of 10 per cent. strength by weight.

Spiritus Ammoniaë (U. S. P.), an alcoholic solution of ammonia containing 10 per cent. of the gas by weight. 1-2 c. c. (15-30 mins).

Spiritus Ammoniaë Aromaticus (U. S. P., B. P.), Aromatic Spirit of Hartshorn, Spirit of Sal Volatile, contains ammonia and ammonium carbonate along with several volatile oils dissolved in alcohol. 1-4 c. c. (15-60 mins.).

Linimentum Ammoniaë (U. S. P., B. P.), ammonia liniment, volatile liniment, contains about 3.5 per cent. of ammonia (2.5 per cent. B. P.).

Ammonii Carbonas (U. S. P., B. P.), is not the pure carbonate but a mixture of somewhat varying composition consisting of carbonate ($\text{NH}_4 \text{HCO}_3$) and carbonate of ammonia ($\text{NH}_4 \text{NH}_2 \text{CO}_2$). It releases ammonia in the air and has therefore its pungent taste and smell. It forms translucent, crystalline masses, is very soluble in water and is contained in the aromatic spirit of ammonia. 0.2-0.6 G. (3-10 grs.).

Ammonis is contained in several of the tinctures of the B. P. (ammoniated tinctures) and the Linimentum Camphoræ Ammoniatum, etc.

(To be Continued.)

ORIGINAL CONTRIBUTIONS

TOOTHsome TOPICS.

By R. B. Tuller.

I've
Got a
Patient
That I'd like
To trade off for
One of those ideal ones
The rest of you fellows have.

Her parents, long ago, went to that bourne whence no traveler returns.

They left her wealth enough to keep her in affluence and make her happy.

And she is happy—in her way; and I don't believe she'd ever be happy in any other way, and that's telling her troubles.

Her property, which is her theme of conversation nine-tenths of the time, is mostly flats, from which she derives a liberal income. She's an old maid.

She employs an agent to look after them, but having nothing else to do, she enjoys looking after them herself, and the agent as well—and for trouble.

If she has an appointment with me at 9 o'clock she comes at 8:30, and is frequently waiting for me. I've heard the following ramble fully fifty times, or something like it, beginning as soon as she's in the office: . .

"Good morning, doctor. I had to go over to my North Side property this morning, so I thought I'd get an early start. Mr. Jinks is looking after my property, you know, but I have to look after Mr. Jinks, and the property, too. Lord!

"Guess he's a pretty good man as rent agents go, but here it is the 4th of the month and one of those tenants hasn't paid the rent yet. He's too easy.

"I'm going over just to let them know I'm on earth. They never have beat me out of anything and I don't want 'em to. I

shan't ask 'em for the money, for I don't want to mix up; but the last time I was over—I guess I was telling you;—it is the tenant in the middle flat by the name of Binkle. When they rented they had no children. I don't rent to people with children. I haven't any myself and I'm not going to be bothered with anybody else's children. Well, what did that Binkle family do but go and bring two pairs of twins into the world in *my flats*. I guess I was telling you. They've got to get out May 1st. Good Lord! One at a time is enough for anybody, anyway;—but two at a time—I won't have it in my flats. You bet, the next family that goes in won't—well, I don't suppose I can stop 'em, but I'm going to have Jinks put it in all my leases hereafter, that *that* sort of thing has got to be—well, it won't be tolerated; it will cancel the lease. I'm not going to be imposed upon. I won't have children 'round, daubing up walls and the window shades.

“Now, I've had trouble all winter, just on account of those twins. They had to have more heat than anybody else. I guess I was telling you, all my flats are steam heated and my coal bills are something frightful, and I don't believe Mills, the coal man, is giving me the best coal, and I pay for the best. I'm going after him, too. Lord!

“These people all think because I'm a lone woman that I'm a soft mark. Well, they'll get left. I pay my bills and I intend to get what belongs to me. Now, those Binkles with their two pairs of twins have cost me a lot more for my coal this winter and have made trouble with the other tenants, and I'm going over to tell them so. They want it warmer all the time than the others on account of those twins. And Mr. Binkle will go down and open the drafts, and boom up the furnaces until my other tenants are just roasted. Then Mr. Chase, in the lower flat—a nice family—no children—only he's a gambler, I guess—but he pays his rent—Mr. Chase, he goes down and shuts off the draft and then in a little while down goes Mr. Binkle and turns it on. My janitor is supposed to look after that, and does, but he attends to my other flats across the street and lives there—I guess I was telling you—and he can't be on hand *all* the time. Well, Mr. Binkle and Mr. Chase got down there together one time, and they had some words, and Binkle would open the draft and Chase would close it, and Binkle would open it and Chase would close it; and one got a shovel and the other the poker, and they banged around there and broke the draft slide;

and which one is responsible I don't know. I know I had to pay \$3.00, or Mr. Jinks did, which is all the same, I pay for it just the same, to have that fixed. Then they got to squabbling and Binkle put Chase out of the furnace room and fastened the door, and Chase kicked it open and broke the lock and hinges; and I had to have that fixed; and I expect Jinks to make one or the other, or both, pay for that. Good land! I wish I didn't have any flats. They are a constant torment. It is nothing but trouble all the time. I live in one of mine on the South Side, I guess you know, and I've got one woman in there over me, that I'm going to fire in the spring. She's a nice woman—just as nice as she can be, but she wants everything different. My janitor there tends to the furnaces at 5 o'clock in the morning, so as to have a good fire by the time people get up, and he's the quietest fellow I ever had. I never hear him; but she does, and she's above me, and she kicks and don't think he ought to tend to the furnace until 7 o'clock.

"Then at night he fixes things about 9 o'clock—maybe 9:30—to last over night, and she wants him to do it before 8 o'clock, for she often goes to bed at eight. Then, when he goes in and out at the rear, he has to go through a gate, and I've told him to never let the gate slam, and he don't; but that woman kicks about the gate. Then the man on my third floor, he works until late at night, and she always hears him when he comes home, and growls about that. Oh, she wants to stay—she told me so—she expects to; but my land! the rest of us have got to live. I wish I had my property all in cash, only I don't know how I'd invest it to get a good income from it; but the bother of these tenants!—

"Oh, have you got to put on that rubber dam? That's an invention of the Old Harry! Well——

"Welth I wath go'n thell you abouth a meathly thanitor I hadth in my Weth-side flats. Maybe I didth. He'th a thingle fellow, a Thwede, andth thlept in the bathement; buth he hadth a thister living over on the neth sthreeth—poor family, I gueth—anywayth, thath fellow wath warmingth thath fambly up with my coalth half the winther, th' mitherable thalawag. Now, wath you thinkth of that? Thath the way I'm impothed on becauth they thinkth I'm a wormanth and alonth in the worldth, the nasty Thwede. Of courth he goth the bounth—anth we all the troublth of gethin' anotherth, andth you never know whath your go'n geth. I thought my

coalth billth wath heavyth, and there he wath, sthealin' it, the nasty Thwede.

"And think of those Binkles on the North thide landinth thwo pairs of twirth in my flath! Oh, Lorth! They go May 1st.

"Whath you go'n dooth nowth—use thath boringth machine? Oh Lordth!"

Then I got in my inning.

The rubber dam, you see, don't always dam the stream though supplemented by considerable damn in one's thoughts; but God bless the dental engine! I'd go crazy, sometimes, if it wasn't for that. Who wants a charming and wealthy old maid? Age, 50. Let some nice young man speak up. She may adopt him.

(Toothsome Topics every month.)

NEW APPLICATION OF SOFT OR VELLUM RUBBER

In the class of cases where the two cuspids may be the only remaining teeth, with large crowns and narrow necks, the close adaptation of hard rubber in a denture around these teeth becomes impossible. The case is then flaked and the wax removed in the ordinary way. The plaster teeth may have been previously trimmed slightly, then completely encircled by packing liberally the soft rubber. Around this is then packed the rubber ordinarily used, when the case is vulcanized as usual. Care should be observed in finishing not to use scrapes or files, but a sharp knife, with both the knife and rubber wet. Some little force will be required to press the plate to place, when a snug adaptation will be attained, offering support to the plate superior to clasps and less harmful to tooth structure.—Dr. P. B. McCullough, *International*.

MORE RECIPROCITY OF LICENSE

BY EMORY A. BRYANT.

Editor American Dental Journal:

Since my article in the November number of your Journal upon the subject of "Reciprocity of Dental Licenses" something has "been doing" along this line, and I may be pardoned if I take the "then" and complete the story to the "now."

In the letters of December 28th, 1903, and January 11th, 1904, which I quoted in that article, my readers perhaps noted that both agreed that the action of the N. A. D. E. in the matter of the "Stockton Resolution" was merely "a starter" and "an entering wedge to open up the subject for *the consideration* of the various boards, and can be in *no wise operative* except as various state boards agree with one another on the *standards of interchange*."

In other words, it was not adopted by the body with the expectation of any further action, but like many other "resolutions" just for fun.

I have before me the proceedings of the N. A. D. E. held at Asheville, N. C., 1903, in which appears the following:

"The Association then took up the resolution heretofore offered by Dr. Stockton of New Jersey, concerning reciprocity and the interchange of state licenses.

"Dr. Dorward (Neb.) I move you that it be the sense of this body that so far as practicable these reciprocal agreements *be carried out* between the various boards.

"The above motion was regularly seconded and *unanimously carried*."

Page 84, Proceedings of the N. A. D. E., 1903.

That is plain enough. Nothing there about "discussion" or "starter;" "as far as practicable" they are "*to be carried out*."

Just how well this "resolution" has been kept by those who made it, "*unanimous*" is an easy matter to figure from the "roll call" and the report of the state boards who have agreed with each other to grant exchange, published in the February number of the "Items of Interest," 1905.

Out of the twenty-two states represented, New Jersey and Tennessee consistently followed what they had agreed upon, and the District of Columbia Board has done so because it is *compelled* to by a law passed to conform to the Asheville resolution, which law said board "inconsistently" gave its "heartly accord" when it could

fight it no longer and could do nothing else. New York and Pennsylvania agreed to interchange with each other *outside* all lines laid down by the Asheville resolution, (Stocktons) and New York opened her heart and *again* agrees to an exchange with New Jersey, but not on the lines laid down and agreed upon at Asheville.

Outside the N. A. D. E. the Boards of Arkansas, Indiana, Michigan, Oklahoma and Utah have started upon interchange within the lines of the resolution with New Jersey, eight in all, with Maryland willing under its discretionary power, making nine working under the "Stockton resolution," with New York and Pennsylvania saying to the country "We are better than thou" and holding off on a "side track."

Now let us look at this "agreement" and see wherein their claim for greatness arises. Is it from the standpoint of knowledge of dentistry? Oh, no. Just simply "provided the preliminary education of the candidate is equal to that required by the New York statute."

The preliminary requirements of the Pennsylvania law is only that of "competent common school education;" the New Jersey, "an academic course;" New York, "equivalent to graduation from a four-year high school course."

Here we have three different "qualifications" which by agreement are to be "understood and admitted" to be "practically equal."

Now the question is, which one of these "qualifications" must be adopted by any other state wishing to form reciprocal relations with these three? How are these conditions to be met without changing the laws of practically every state in the Union? Again supposing every other state does adopt a new law to conform to their law, what change would that make in the "qualifications" (preliminary) of the dentists who are already in practice before the passage of the law?

These three states have seen fit to "cut the throats" of all the practitioners of their own states prior to 1895, are we to understand that all the other states that may conform to their ideas must do likewise to all practitioners of record before the passage of the law?

New York's law was last amended in 1901—New Jersey's in 1898—and Pennsylvania's in 1897. Upon what ground have the Boards of these three states drawn the line for reciprocal relations for only those who have commenced practice since 1895?

I may make a rough guess by stating it was in 1895 that the New York law regarding preliminary educational qualifications was *passed*, but as that law did not require the clause of "a full high school course" to go into effect *until* 1897, and New York did not require this preliminary educational qualification before that date, *why? oh, why* did this august commission, consisting of Drs. Wm. Carr and H. J. Burkhart for New York, and Wm. E. Truex and Chas. A. Meeker for New Jersey, set the date of 1895 as the limit in which practitioners of either state could take advantage of an exchange of license? *Why set any date previous to the adoption of the terms of interchange?*

Again, the Pennsylvania law did not come into effect till July, 1897, that established any preliminary requirements outside the Dental Degree, and the New Jersey law until 1898.

The New York Dental Colleges did not require "a full high school course" as a prerequisite to entrance until 1897, and the New York law on this point was passed for the benefit of the New York Dental Colleges for adopting a "preliminary educational requirement."

The point I wish to make is, *why* this discrimination in favor of those who commenced practice in the two years from 1895 to 1897—without this preliminary requirement? If the public or the dental profession are injured by those who are practicing who have not had the advantage of "a full four year high school course" previous to 1895—*why* are not those between 1895 and 1897 equally as injurious?

I will venture to say at this point, that from the date of the first interchange of license under the agreement entered into between New York and New Jersey as published in the Dental Journals for February, 1905, that by law, any license of New York or New Jersey can *compel* an interchange of license no matter at what date they were licensed in either state. Not only that, but any of the class of "advertising dental parlors men" can as easily obtain this exchange as any legitimate practitioner in either of these states.

Under the "Stockton resolution" and its adoption, this would have been an impossibility, so it can be easily figured out that the New York plan is inconsistent, without merit or justification, and unlawful.

The Wisconsin plan does not even deserve that much attention.

The New Jersey "Stockton resolution" plan is the only con-

sistent and lawful plan yet devised, and New Jersey and its representatives are the only ones who have shown a disposition to be consistent in the endeavor for "Interchange of State Dental Licenses" as "resolved" by the N. A. D. E. at Asheville and "re-resolved" at St. Louis (with a string tied to it.) It is a very simple illustration that the only way to arrive at the point of legitimate interchange of licenses is to pass a law in every state in the Union with the same wording, that will *compel* the State Boards of Examiners to grant the same under the terms of the law. Just so long as we continue to allow these "would be reformers and educators" to handle these matters on the plan "we won't play in your back yard" except on our own terms, just so long will this inconsistent disjointed mess of resultless tommy-rot be foisted upon the members of the dental profession.

The very idea that dentists who have been in practice for a period of ten years only, are better qualified to practice than those who have been in practice for a much longer period, or that the fact of their being admitted to interchange would detract from the future standards of dentistry is too absurd on its face to require comment.

The only reason that the profession itself has allowed these "more holy than thou" abortions to control matters as long as they have is from the standpoint of *pure, unadulterated selfishness* and fear that all the incompetent dentists of the country, as well as the competent ones, stand ready to throw up their present practice and residences and become a set of "wandering nomayds," going from state to state and overwhelming those who think they are settled for life.

The utter absurdity of that is shown by the effects of the law of the District of Columbia, which has been in force for just a year, and *only one man has come in under its provisions*; although the door is open to every dentist of more than five years' practice, graduate or not, in any state or territory of the Union, *who can obtain a certificate from his home board that he is "a competent and moral man."*

The facts of the case is that the dentists of the District have *decreased* in number "fourteen" according to the City Directory for this year, and this too in the face of admittance of some twenty graduates of the local dental colleges in this period.

Thus endeth the second lesson.

EMORY A. BRYANT.

IOWA CITY CLINIC

On the 6th and 7th of February, 1905, the dental department of the State University of Iowa held its second annual Alumni Clinic at Iowa City, and the entire two days was faithfully devoted to clinics, and all those who were present and saw the operations considered the meeting of unusual benefit.

There were upwards of sixty clinics given, the operations all being performed at the clinics, there not being a single one who brought his inlay already made to drop into cavity, and explain that they were not quite ready to complete the operation. But each one began and completed his operation in the two days, showing in the minutest detail every step from start to finish.

Dr. J. V. Conzett, of Dubuque, Iowa, made a beautiful filling of gold in the mesio-occlusal of a lower molar. The operator certainly deserved great applause for the excellent manner in which he demonstrated extension for prevention in such a conservative manner. Dr. Conzett is an enthusiastic believer in extension for prevention, and has with that enthusiasm some of the clearest ideas of tooth preservation whenever and wherever it is required, in order words, he manifests good, common sense in filling teeth.

Dr. J. J. Booth, of Marion, Iowa, also put in a gold filling, using soft foil, finishing with cohesive. The operation was a difficult one, a distal cavity, involving the buccal angle, and was a beautiful piece of work.

There were a number of other gold fillings put in, all of which were of the highest class of operations. There were so many, in fact, that it would be quite out of the question to give in detail the various operations in gold fillings. But if one could see the operations performed by J. D. Welsh, of New Hampton, Iowa, William Finn and C. W. Booth, of Cedar Rapids, Iowa, they would at once observe that gold filling would not be likely to become a lost art, at least while they are able to operate because they have all, with many others in that section of the country, acquired great skill in the manipulation of gold. However, it must be said on the other hand that the inlay workers were equally as skillful in the reproduction of the lost part of tooth by porcelain and gold inlays.

Dr. F. E. Cheeseman, of Chicago, successfully reproduced at least one-half of the buccal portion of a lower molar in porcelain.

Dr. C. M. Work, of Ottumwa, Iowa, accomplished wonderful success in the restoring of the mesio-incisal angle of a central incisor.

It has been the privilege of the writer to witness a number of clinics by Dr. Work, and he is skilled in this class of work. While there were other inlay workers at the clinic, the two just mentioned stand out pre-eminently beautiful.

Dr. T. A. Gormley, of Mt. Vernon, Iowa, restored the mesio-occlusal half of an upper bicuspid, a very excellent operation.

Dr. T. G. Hildebrand, of Waterloo, Iowa, demonstrated the use of platinoid in bridge and crown work. Dr. Hildebrand has been noted for years as being skilled in this line of prosthesis, and he is to be relied upon when it comes to any statements relative to this class of work.

Dr. L. L. Branson, of Iowa City, Iowa, showed some beautiful pieces of work in gold and porcelain dummies in crown and bridge work.

Dr. W. H. DeFord, of Jefferson, Iowa, showed the use of Somnoform for producing anæsthesia when excavating sensitive dentine and removing live pulps, and demonstrated its value as a preliminary to the administration of ether. Dr. DeFord also showed a perfectly formed bicuspid tooth removed from a cyst cavity in the superior maxilla. The perfect outlines of this tooth could only be made out by a strong magnifying glass.

While there were a great many other interesting clinics it would be quite impossible to go into a detailed account here, suffice it to say that the clinics and the meeting as a whole would compare favorably with anything of its kind held in this section of the country.

The program of the first meeting consisted of a paper by Dr. Geo. W. Swartz, of Chicago, subject, "Porcelain Inlays." Another paper was read by J. V. Conzett, of Dubuque, Iowa, subject, "The So-called Radical Methods of Making Gold Fillings." These two papers were read and discussed in a very enthusiastic manner.

On Tuesday evening, which was the last day, there was an informal smoker at the Burkley Hotel and a successful two days' meeting of the graduates of the dental department of the University of Iowa came to a pleasant ending, in the singing of college songs by the male quartet. All who were present expressed themselves as being satisfied with the wonderful success, both in a professional and social way.

Those who are not familiar with Iowa dentists and with the dental department of the University of Iowa, cannot realize what a great institution the State University of Iowa is and what it is

doing in the educational world. Their dental and medical departments compare favorably with anything of the kind in this country, and it is to be hoped that the legislatures of Iowa will be more liberal with the dental department in the future than they have been in the past, and will wake up to a full realization of the possibilities for usefulness to the people of the commonwealth of Iowa. Apparently men who are educators and who should have a high appreciation of the skill necessary to perform operations, requiring the most delicate manipulation, would be more liberal-minded and more generous in their patronage to the education of individuals who contemplate the practicing of that branch of the healing art known as dentistry. But it is a sad commentary upon the intellect and generosity of American people that the education of the dental profession has been solely through the efforts of the profession itself, and the little bit of money that has been appropriated by a few states for dental education has been done under protest. And I would suggest to the dentist who may be called upon to minister to a state legislator that he refrain from the use of pressure or any other anæsthesia, but remove the pulp in the old method of driving a hickory stick into the pulp canal.

G. W. C.

FIFTY YEARS A DENTIST

George J. Friedrichs, D. D. S., M. D., New Orleans' oldest dentist, celebrated his fiftieth anniversary as a dentist. In honor of the occasion, the dentists of New Orleans tendered him a golden anniversary banquet at the St. Charles Hotel.

Few men in any profession have had the remarkable career which has been that of Dr. Friedrichs, in the last fifty years. He began the study of dentistry in 1848, when he became an apprentice to Dr. John S. Clark of St. Louis, Mo. He continued his practice under Dr. Clark, and when that gentleman went South for his health, Dr. Friedrichs accompanied him.

In 1855 Dr. Friedrichs was graduated from the Ohio College of Dental Surgery, at Cincinnati, which was at the time one of the two dental colleges in the United States. The other college was in Baltimore, Md.

When Dr. Friedrichs began his practice, improvements were being made in the dental appliances, but the science of those days was nothing to what it is today. The first forcep had just been invented.

They replaced the old cork-screw-like key, in use in the earlier times.

Anæsthetics in dental science were not in use when Dr. Friedrichs first began his work. He has seen this gradually developed into one of the most important agencies of the science.

Dentists in olden times were not recognized by the American Medical Society, it being contended that dentistry was not a branch of that society. To surmount this difficulty Dr. Friedrichs took a course in medicine, and in 1883 was graduated from the medical department of the University of Louisiana, now Tulane University. He has never practiced medicine to any extent.

In fifty years many honors have been conferred upon the venerable dentist. He is a former president of the Louisiana State Dental Society; was twice vice-president and once president of the American Dental Society; is an honorary member of the American Dental Society of Europe; is an associate fellow in the American Academy of Dental Science; member of the Southern branch of the National Dental Association; member American Medical Association and the Louisiana State Medical Association; honorary member of the Orleans Parish Medical Society; honorary member of the New York Institute of Stomatology, and a professor of operative dentistry at the New Orleans College of Dentistry.

Dr. Friedrichs is a native of Eberman-Stadt, Bavaria. He was born there in August, nearly seventy-five years ago. Notwithstanding his advanced age, he continues to practice his profession, being assisted to a great extent by his son, Dr. Andrew G. Friedrichs. During the civil war, Dr. Friedrichs lived in New Orleans. He was a lieutenant in one of the companies of militia, and formed part of the home guard. One of his brothers, Dr. P. J. Friedrichs, served throughout the war, while another was killed at the battle of Baton Rouge.





ABSTRACTS and **SELECTIONS**

VALUE OF MEMAERSHIP IN THE ILLINOIS STATE DENTAL SOCIETY, AND THE REORGANIZATION PLAN

By Dr. C. E. Bentley, Chicago.

Any movement looking toward the solidarity of the dental profession should be encouraged. It makes the group cohesive; it strengthens its personnel. The impulse of its units becomes the incentive of the group; thus is reflected the best and the worst that is in a group according to its dominating forces, and all collateral conditions bearing upon it are consequently affected. Some one has said, "All the higher movements of humanity tend to grow in ever widening circles. As antagonisms extend so do friendships, the complementary uniting of larger and larger groups. This is the spirit of our times."

Within a year a movement has sprung up within the borders of our State which has for its motif the cohesion and contact referred to. The ready response by which this movement has been met has shown that the body of the profession was ready for such action, thereby demonstrating that the many were ready to sacrifice their personal ambitions for the benefit of the common weal of the profession. This is a distinct advance and marks an epoch in the progress of things dental.

The Reorganization Committee of the State Society has perfected an intricate machinery necessary to the plan of organization. This has entailed endless detail and many hours of labor. So far as its workings have been revealed it has been found flawless.

What are some of the advantages of this new plan of organization?

First: It centralizes the power within the State organization and makes it truly representative. From it must radiate impulses that will be felt throughout the State in its component societies. This is as it should be. The State organization should truly represent the commonwealth and should be so constituted as to shape the policies and direct the tendencies of the various societies that constitute its organization. Thus a unity of action, a community of interests and a definiteness of purpose will bind the integral parts together and

the good of the whole can be the only result. This is made possible by a State organization. No local organization, however large or popular, can do this work as well as a State society made up of component societies. The plan provides for a relationship between the State and component societies, the effect of which must be felt by such societies and the State organization as well.

Second: It will give numerical strength to the State organization. With a membership increased from four hundred to one thousand in one year, what may we not hope for in the line of legislation that will be of benefit for both public and profession? When our last attempt was made for better legislation but eleven per cent of the profession was represented in our State Society. By the new plan it is hoped to have sixty per cent represented. When an attempt was made last year by the Illinois State Dental Society to influence the Governor and State Legislature to give us a better dental law in order that better professional service might be rendered the public, we were confronted by the question, "What percentage of the dental profession is represented in the State Society?" We were compelled to answer, "Eleven per cent." Here was eleven per cent of the profession asking for legislation for the remaining eighty-nine per cent, and the latter had no representative among the former. While this should not be used as an argument against legislation that has the good of public and profession in view, yet it had weight with those who in their representative capacity were exponents of the people of our commonwealth, and proved an effective weapon against us. This condition will be changed by the new plan of organization.

Third: It will afford an opportunity for dentists to come in touch with one another. The most civilizing influence is that of *contact*, and this power will be greatly enhanced by this plan. Do we fully realize the force of this power of contact? Reputation is what we seem to men, character is what we really are. *Contact* reveals the character of men and we come to realize their true worth. Nothing that Dr. George H. Cushing ever wrote was worth one hour of contact with that personality which he possessed. It illumined everything it touched and appealed to everything noble within you.

In reading the history of the Illinois State Dental Society the personalities of two men stand out prominently—George H. Cushing and Homer Judd. Contact with these men must have been an inspiration. There are many men in the profession today whose per-

sonalities give hope and confidence to the men they meet by reason of this *contact*. Let us then lend our aid to any movement that will enhance this power for good.

Fourth: It will make of the State Society one worthy of its traditions. Rich, indeed, is this society in this respect. It has been a post-graduate society for many men whose names are illustrious in our professional annals. The history of this society as portrayed by a former writer in this Bulletin shows the onward and upward development of this band of earnest men until it can lay claim to the proud boast of being one of the most potential forces, if not the greatest force, for the uplift of modern dentistry. The plan referred to will give a new impetus to this vital force in our calling.

Again, the State Society has been a professional benefactor.

In 1897 three hundred dollars were appropriated for the Dental Protective Association for the protection of the dentists of the State and the United States.

In 1899 two hundred dollars were appropriated to the State Board to aid in better legislation for the profession.

In 1902 fifteen hundred dollars were donated to the prosecuting committee of the National Dental Association for the purpose of fighting colleges that were selling diplomas, and the so-called "patent shark" companies.

In the same year one hundred dollars went to the suffering dentists of the Galveston flood.

In 1903 twelve hundred dollars more were sent to the committee to prosecute diploma mills and patent sharks. All of this done with less than four hundred earnest men, representing a small percentage of the profession of the State, that the profession might be clean and that conditions might be better for all.

Is not this a record of which to be proud, and should we not help its effectiveness by giving the plan our best support?

Lastly: It should be heartily endorsed for the reason that similar action can be taken by other States and finally have our influence felt in the National Dental Association and make that body a truly representative one.—*Bulletin of the Illinois State Dental Society*.

DEATH DUE TO DENTAL CARIES

Broca observed this interesting case. The patient was a boy of four years. The first sign of trouble was toothache, of which the child complained on June 22. A physician diagnosed a small dental

abscess at the root of the first lower molar. But the occurrence was thought of little consequence, and was forgotten till the child's condition became serious. On July 1, after a night of fever and delirium, the patient was placed under a physician's care, twenty-four hours of valuable time being lost at this time before the morning visit of the physician. On July 2 the patient was seen by the writer. In the right preauricular, parotid and angulomaxillary regions there was diffuse swelling, œdematous and non-phlegmonous. The skin was neither red nor puffy. There was a slight cloudy discharge from the ear. Nevertheless, the writer did not consider the trouble of auricular origin, for there was no appreciable modification in the retroauricular region, and it was not anywhere painful to pressure. There was no swelling over the tip of the mastoid. Moreover, all of the swollen parts over the ascending ramus and the body of the jaw was exquisitely painful to pressure. The writer considered the trouble to be without doubt an osteomyelitis of the maxilla. Pus was found around the carious inferior molar. This was the portal of entry of the infection, and the prognosis was very grave. As permission could not be gained at once for operation, it was deferred until the next morning. Incision was made along the border of the inferior maxilla. There was no pus, but two teaspoonfuls of a very fetid, brownish fluid flowed out. The effect of the operation was negative. The local swelling was diminished, but the general infection was not relieved. Death soon followed. The writer thinks that a correct diagnosis, with early operation, would have saved the child, and he urges the necessity of careful attention to a carious inferior molar in a child. Early extraction is indicated if the cavity cannot be perfectly filled.—*Journal des Practiciens*, October 25, 1904.

A SUBSTITUTOR CONVICTED

KRESS & OWEN *vs.* CRUTTENDEN.—On the 8th day of December, Police Magistrate Denison, in the Police Court, registered a conviction against Thos. Cruttenden, Jr., who keeps two drug stores in Toronto, one at the corner of Howard and Sherbourne streets, and the other at the corner of Gerrard and Sumach streets, for infringement of the trade mark, duly registered in Canada, owned by Kress & Owen Co., 210 Fulton street, New York, "Glyco-Thymoline." The evidence conclusively showed that the defendant had put up a preparation under the name of "Glyco-Thymol," in bottles almost identical to those of Kress & Owen Co., and with labels worded

verbatim et literatim to those of the original manufacturers. The magistrate, in registering the conviction, gave the defendant's solicitor, who hinted at an appeal, to understand that if he entertained that idea, he would not only fine but imprison his client as the law provided. The case was adjourned for a week, at the end of which time Cruttenden, through his solicitors, gave an undertaking that he would stop all manufacture of Glyco-Thymol and destroy all labels, bottles, etc., connected with the sale of that preparation. The firm of Kress & Owen Co. are deserving of congratulation over the result of this case. They had every reason for prosecuting Cruttenden, as it was nothing short of dishonest and entirely contrary to the law that he should stoop to such practices and try to rob a firm who, by strictly ethical advertising (solely to the profession) and the expenditure of about \$175,000 per annum, have secured a large sale of Glyco-Thymoline, a preparation found valuable in catarrhal conditions of the mucous membrane.—*Canadian Journal of Medicine and Surgery Editorial*, January, 1905.

NEURALGIA

I venture the assertion that a large share of the disorders, both trophic and painful, of the fifth nerve, have their origin in the teeth. I know that I am carrying coals to Newcastle when I tell you this, as you have observed many such cases. Let me urge those of you who treat diseases of the teeth to broaden your clinical investigation of your cases somewhat, as this is an important matter. I urge you to watch your cases in the next three or four years, and investigate what trophic disturbances your patients may have besides those attention to an eczematous patch at the scalp margin. I said to her: "How are your teeth?" She replied: "I have been over to my dentist and have had a tooth treated on this side." No doubt, there was those of us who devote particular attention to the nervous system do not see many of these cases. I have seen but one in the past year. I had one woman, whose boy I was treating, who called my associated with the conditions you find in the mouth. Unfortunately, a casual relation in this case. Those of you who see the teeth first should broaden your clinical investigation of the cases; see if there are any trophic disturbances about the face, if there is an erythema, a baldness, or tenderness which may be due to the conditions that are taking place in the mouth.—*H. N. Moyer, M. D., Register*.



EDITORIAL

RECIPROCITY

It is pretty generally conceded by all fair minds in the dental profession that a crying need with us at the present time is uniformity and equalization of dental laws in the several states, with reciprocity provisions, that would enable practitioners of several years' reputable standing, and being duly credited and certified to as qualified, to go into any state in the Union to practice without being hampered by such exactions as now exist in many states that make it well-nigh prohibitory. It is vain to dream of bringing about such changes of laws in nearly half a hundred states within any reasonable period of years, though it will probably come in time.

What course, then, may it be possible to pursue to bring a remedy for evils that are not only exceedingly vexatious and unjust, but which inflict serious hardships on many thoroughly worthy men in our profession under the present status of inter-state dental affairs? The only remedy that seems available anywhere in the near future lies in the hands of that body of dental representatives known as the National Association of Dental Examiners, an organization that should be fostered and encouraged by the dental profession at large. It is through such a body, largely influenced as it would be by the various dental societies of each state, and national and inter-state organizations as well, that we may hope to arrive at something like uniformity of standards that shall be recognized throughout all the states, and a sentiment of reciprocity that will recognize qualified practicing dentists, properly certified to, as worthy of a common-sense and fair consideration before any state board of examiners within the limits of the discretionary powers given by said laws. Discretionary power is given to every board, and it can be just as faithfully and conscientiously exercised in a liberal way as in an exacting and prohibitory way; for it is clearly the intention of no state dental law to prohibit practitioners well known to be worthy and well qualified. If any state really desires to erect a Chinese wall against good, true and tried men from other states, the practitioners

who hold to such a law might go a step farther and decline to associate with dentists of other states, or to read dental literature not of their own thought and elaboration. They should have their own dental schools and be sufficient unto themselves in all things.

The National Association of Dental Examiners is not yet representative of all the states in the Union, but is of a large part, and especially of states that have among them the greatest amount of recognized and appreciated dental talent. The reciprocity sentiment in this organization has been growing for some time, and developed into a real step in that direction by an agreement between some of the state examiners, at the meeting at Asheville, N. C., last year.

Let the work go on, and in due time the obstructive measures that now obtain in some state laws will yield to the prevailing sentiment, and more uniformity will certainly be realized in due course of time. And further, state laws may yet provide for the attendance of a representative upon the National Association meetings. No state board should be without its representative at these meetings. The states that are without representation there are certainly at a disadvantage, and members of the profession and societies should urge attendance of one or more of their board every year, if they want to keep in step with the procession of progress.

R. B. T.



SOCIETY PROCEEDINGS

GOLD FILLINGS, FROM THE SO-CALLED RADICAL STANDPOINT

BY J. V. CONZETT, DUBUQUE.

Mr. President, members of the Alumni Association of the Dental Department of the Iowa State University, Ladies and Gentlemen: I have been asked to present a paper before your Association upon the subject, "Gold Fillings From the So-called Radical Standpoint." I confess that I was considerably surprised to receive such a request, as it implied that the methods we are using are radical, and I have been asking myself ever since, the reason for such a request. Is it that our methods are really thought to be radical by the authorities of the State University, or is it merely a wise method of having the methods emphasized by a thorough presentation and discussion of them. In the light of recent history when the foremost men of the Dental Profession have been publicly endorsing Dr. Black's methods, when such men as Dr. Kirk, the editor of the *Cosmos*, has said that "extension for prevention has been demonstrated." When Dr. Ottolengui in a recent issue of his journal has tried to make it appear that the practice has always been his. When such an authority in the West as Dr. Prothero said to the writer, "You men in the Northwest are making the finest operations in the world." When Drs. Black and Johnson have seen fit to endorse and enthusiastically praise the work of the Black Club of St. Paul, and the Wedelstaedt Club of Iowa, I prefer to think that the reason I have been assigned the subject in this way, is that it may be more thoroughly understood by the profession in general. But if a study of conditions and an earnest attempt to correct those conditions when found to be faulty, if a carrying of the lines of our cavity into the regions of comparative immunity, if the preparation of our cavities upon rational and sound mechanical laws, the thorough condensation of our gold, the preservation of the interproximal space as nature intended it, etc., etc., be radical, then, gentlemen, I am proud to be a radical. Dr. Morgan Wood has said

*Read before the Alumni Meeting of the Dental Department, State University of Iowa, at Iowa City, February 6-7.

that man is not satisfied with a theory, he wants a demonstration, so I come to you this evening with no cunning fable, but I come with a method that I have tried and found true. I come with a few of the conditions in plaster casts that I have studied in the past, casts of failures of my own and those of operators of far greater skill than mine. I only wish that I had casts of the multitudes of conditions that I have studied in the past, and also casts of the manner in which those conditions have been corrected. And as I exhibit those failures and criticise the methods, I wish to be distinctly understood as not criticising the men who made the operations, for many of them were made by myself, and many times many more are the failures that I have made that I have not and cannot exhibit, that were made along the old lines. So if I say anything that might be construed as a criticism, remember it is a criticism of the method and not of the man. It was a "condition and not a theory" that confronted the profession not many years since. Men were continually beholding their best efforts and most careful operations coming back to them after a time of shorter or longer duration, entirely or partially destroyed by a recurrence of decay, and about the only thing that they could say to the patient was the old, old excuse, "Your teeth are too soft." But one man more observant than the rest noticed that certain fillings did preserve the teeth even in the mouths of individuals highly susceptible to caries, and he noticed that it was always the fillings of the same general type, and those fillings, wonderful to relate, the largest fillings. As a result of his observations and investigations, he came to the conclusion that the fillings that were made in teeth in such a way that the margins were kept clean by the excursions of the food over them in mastication, and whose gingival margins were under the gum did not invite a recurrence of decay. He therefore gave the world that epoch making paper on the "management of the enamel margins," which was published in the Dental Cosmos for 1891. I cannot, of course, take up that article tonight, I can only advise every man to read and re-read it until he has its principles thoroughly interwoven into the web and woof of his dental knowledge. Again he went into his laboratory and came forth with his magnificent work upon the physical characteristics of amalgam and of gold. It is the work and the methods of this man, Dr. G. V. Black, the greatest dental scientist that has ever lived, and of his very able and authorized disciple, the man who has made the operators of the Northwest

to be recognized as without peers in the world, that I have the honor to bring before you tonight. It is simply impossible in the time allotted to me tonight to attempt a general survey of the whole field of dental operations, so inasmuch as a concrete example is many times more valuable than an abstract principle, I have asked that the operation that shall be assigned me at the clinic in demonstration of my thesis shall be a gold filling in the mesio-occlusal surface of a right lower first molar. The first thing we will do, after we have seated our patient in the chair, and our assistant has adjusted the napkin about him for the preservation and cleanliness of linen and clothes, and thoroughly syringed out his mouth with a sterile solution of warm water and some pleasant antiseptic, such as cassia, is to thoroughly study the condition which we are called upon to correct. First examine the teeth in general, as to the general physical characteristics. Note the length of cusps depth of sulce, prominence of bells or flattening of contacts, making interproximal spaces large or small. Then note the general susceptibility of the patient to caries. Are the teeth in general breaking down or is this an isolated sporadic case? Upon an intelligent study of these conditions will depend the amount of our extension for prevention. And it is right at this point that the doctrine of extension receives its criticism. Because the critics do not understand they are always howling about "always cutting teeth to pieces." Such is not the fact, if the teeth and environs show an extreme susceptibility to decay, if the contact is broad and flat, then it is indeed necessary to cut broad and deep, for in such cases if the lines of the cavity are not carried freely into the areas of comparative immunity, you are sure to have a recurrence of decay around the margins of your filling, no matter how perfectly your operation has been made. On the other hand if the teeth are healthy and sound, with a very slight evidence of the susceptibility of the patient to caries, if the bells are prominent making good contact with the approximating tooth, then it is not necessary to cut so extensively. Nevertheless even in these cases the lines must be carried into the regions of comparative immunity, but in the different individuals these areas are not located in exactly the same place, so that here we must carefully study conditions. In fact, as Dr. Wedelstaedt has pointed out time and time again, the whole matter resolves itself into a study of conditions, and then when understanding these conditions to an intelli-

gent correction of the same. Next we will study the occlusion. We will ask the patient to close his back teeth and while at rest carefully note the relation of the cusps, the one to the other. Then we will have him close the incisors and again observe the occlusion. Next we will have him swing his jaw as if in masticating his food, all the time observing the manner in which the cusps travel over the area of decay and proposed restoration. Then, having studied the passive and active occlusion, we will open his mouth and with a glass examine the occluding and incisal surfaces of the teeth for the facets of occlusion, to determine whether in this case there is any evidence of an abnormal excursion of the teeth, such as grinding the teeth at night, or the grinding upon some one or another cusp as a result of nervous habit. A failure to observe this may be the means of our losing our filling, as I can testify through sad experience. Having satisfied ourselves as to the occlusion, and having estimated by an examination of the occlusal surfaces of the teeth and the strength of the masticating muscles, the probable stress the finished filling will have to resist, we mentally lay out the lines of our cavity, adjust the rubber dam, cleanse the teeth carefully with alcohol and proceed to excavate. There is a good deal of discussion in some quarters concerning our relation to the medical profession. That relation, if it exists, is that we are surgical specialists, and as a surgeon lays out the lines of his operation, so must we. What folly it would be for a surgeon in operating upon a cancer to simply cut out the diseased tissue. He would expect the disease to recur. So it is just as foolish for the dentist to simply remove the decayed tissue of the tooth, make a cavity of retentive shape, and fill. We would reasonably expect that tooth to decay again, because the conditions are just the same as they were before, unless the decay has progressed so far that it has extended the cavity and corrected the condition that has invited the caries in the beginning. But it is just such cavity preparation that we are called upon to criticize. Day after day as I stand before my chair I have the patients of other men come to me with fillings that have been inserted a shorter or longer time, and my own patients with fillings that were made prior to my studying these methods, with decay progressing all around them. I have made many casts of such conditions, but have but a few with me. These will show that when fillings are made in such a way that food particles and bacterial plaques can lodge upon the margins of the filling

and be protected from the excursions of food by the approximating tooth that decay is almost sure to recur around that filling. So in making our cavity preparation, we will be sure to carry the lines of our cavity buccally and lingually far enough to insure the margins a safe place in immune territory. For again we know that there are certain surfaces of the teeth upon which caries rarely or never commences. And if a moisture proof margin is located in this territory we need have no fear concerning its stability. We will most readily break down the enamel walls with a sharp chisel, and if the walls are considerably undermined will soon have the cavity outlined. If not, with a sharp burr undermine the enamel at such places as you wish, and then proceed with your chisel as before. When the outline form is complete, and is carried sufficiently far to not only gain extension for prevention, but, extension for convenience as well, we are ready for our retentive form. Here again our methods differ radically from the old methods. It is no longer thought necessary to drill under cuts, grooves and pits to retain a filling. And I wish that this might be more thoroughly understood, for nothing is more disheartening than to remake a filling that has been made on the old lines, and have a deep ditch gingivally, a deep groove labially and lingually and a pit several millimeters long extending toward the incisal angle, to contend with. This is no exaggerated picture. I have so frequently been called upon to correct conditions like that that it no longer occasions surprise. The gingival seat should be flat. It should be as broad and as wide as the stress upon the filling would indicate, the buccal and lingual walls should be as nearly at right angles to the gingival as conditions will permit. The ideal cavity would be a square box with the lid off, and in making our cavity we will approach the ideal as nearly as possibly. I have with me several porcelain teeth in which I have carved cavities, that I will pass around for inspection. The enamel margins must be carefully beveled in such a way that there are no unprotected enamel rods exposed to the stress of mastication. This beveling should be done with sharp chisels and hoes. Never with sand paper and cuttle disks, for it has been demonstrated that it is impossible to pack gold against a polished surface in such a way as to produce a moisture proof plug. Clear out the debris perfectly, varnish the cavity, being careful not to get the varnish upon the margins, and proceed to fill. In this cavity we will use non-cohesive gold in the gingival.

third and also around the walls of the cavity in the occlusal surface. We use the non-cohesive or unannealed gold for several reasons. In the first place it is easier of adaptation, and in the second place it very materially reduces the time in which a filling can be made. In a recent issue of the Items of Interest Dr. Ottolenghin gave a cut of just such a cavity, with a show of plugger instrumentation, and asked why, if cohesive gold could be adapted to a cavity, as Dr. Wedelstaedt said, we should use non-cohesive gold. There is no reason why one should not use it in such a place, if he has no feeling for his own back or sympathy for his patient's nerves. You can make a good filling of cohesive foil in such a cavity if you have sufficient skill, time and a patient with no nerves. But you can make as good, and in nine cases out of ten, a better filling in a third of the time by using unannealed gold. So as we are particularly fond of the muscles of our back and as our patients do not pay us by the hour, we will use unannealed foil. The foil is prepared by taking a half or quarter of a sheet of gold, folding it upon itself until it is the proper width, then with a small instrument, swiss broach, hatpin, or whatnot, roll it into a cylinder. We will take a quarter cylinder and place it in the lingui-gingival angle, press it firmly to place, with its edge projecting considerably beyond the margin, then take another quarter and place it in the same way in the bucco-gingival angle. Then in between these cylinders we will place as many half sheet cylinders as the case may require, and firmly wedge them down to place. This done we will leave this surface for the time being and go to the occlusal surface. With quarter or half cylinders as indicated we will commence at the disto-occlusal-pulpal angle and place cylinders around the cavity, wedging them in as much as possible as we proceed. When finished we have in the center a cavity approximately like the original cavity lined on all sides with cylinders of gold standing on end. We now commence annealing our gold, and commencing at the disto-pulpal angle we build up and forward, carefully wedging all of the cylinders firmly against the walls of the cavity as we proceed, extending the filling over the foil wedged into the gingival seat, and finish by contouring the filling as desired. Our cohesive foil is prepared by cutting a sheet of foil into 8", 16", 32" and 64", and rolling or folding each piece into a pellet. We do this that we may definitely know just how much gold is in each pellet, and may therefore know just how many blows of the mallet are required to condense it thoroughly. The experiments of Drs. Black and Wedelstaedt have shown us that the hand mallet properly

used gives the best results. Therefore we use the hand mallet with a good blow, striking a 32" of a sheet 40 blows, a 16" 80 blows, and an 8" 120 blows. This will give us a density approximately that of cast gold, making a filling that will take and retain a high polish. In condensing our gold we are careful to work the gold from the center toward the walls of the cavity, not placing the plugger here and there at random in a haphazard way, but stepping the plugger from center to walls of cavity in an orderly sequence of steps. The plugger is held at an angle as great as 45 degrees with the wall of the cavity, in order that the gold may be forced or "flowed" against the walls. Under no circumstances should a plugger be held in such a way that the gold will have a tendency to be driven, or be encouraged to "crawl" away from the walls of the cavity, for if it does, it can never again be malletted against the walls sufficiently tight to make a moisture proof filling. After we are through introducing gold into the cavity and our filling is properly built up, we go over the whole filling and thoroughly condense it, using large foot pluggers against the approximal surface and thoroughly condensing the filling, sending the soft foil into the filling as thoroughly as possible. Then we are ready to finish. We use a Black saw to saw out the gold in the interproximal space, being very careful not to cut past the contact point. Next with Black files or Wedelstaedt interproximal trimmers we trim the filling to form, sloping all lines away from the contact point, which when finished should knuckle against its approximating tooth as though two marbles were in contact. The occlusal surface may be cut to shape with plug finishing burrs and stones, the whole filling smoothed with disks and strips, and finally polished like a mirror with pumace and chalk or rouge, when, if all the rules have been carried out properly, you have a filling that is a thing of joy, because it is a beauty forever. In conclusion I wish to say, gentlemen, that the only reason that any one antagonizes these methods is because they do not understand them. I should not go back to the old methods again if I had to quit the practice of dentistry to avoid it. And I have never yet seen a man who has thoroughly understood and practiced these methods that has not become an enthusiast upon the subject. If we could hold an experience meeting here tonight I could bring you a score of men that would say amen to all that I have said. We have adopted these methods because we saw that we were not doing the work we wanted to do by the old methods. If you are successful and have no failures by the old methods, you would be foolish to change for the new.

Society Announcements and Reports of Meetings

THE MINNESOTA DENTAL ASSOCIATION

The twenty-second annual meeting of the Minnesota Dental Association will be held in Minneapolis on June, 1, 2 and 3, 1905.

GEO. S. TODD, Secretary.

MICHIGAN STATE BOARD OF DENTAL EXAMINERS

The Michigan State Board of Dental Examiners will hold their next examination at Ann Arbor, Mich., May 16, 1905, at 9 o'clock a. m.

CHAS. H. OAKMAN, Secretary.

NORTHERN OHIO DENTAL ASSOCIATION

The forty-sixth annual meeting of the Northern Ohio Dental Association will be held at Gray's armory, Cleveland, Ohio, June 6, 7 and 8.

W. G. EBERSOLE, Cor. Sec'y.

MISSOURI STATE DENTAL ASSOCIATION

The Missouri State Dental Association will meet in the city of St. Louis on May 24, 25 and 26, 1905. An excellent program of papers and clinics is being prepared and all ethical members of the profession are cordially invited to attend.

SAM T. BASSETT, Cor. Secretary.

IOWA STATE DENTAL SOCIETY

The forty-third annual meeting of the Iowa State Dental Society will be held at Des Moines, May 2nd, 3rd and 4th, 1905. A program of clinics and papers of more than ordinary interest is in preparation. A cordial invitation is given to the dental profession to attend.

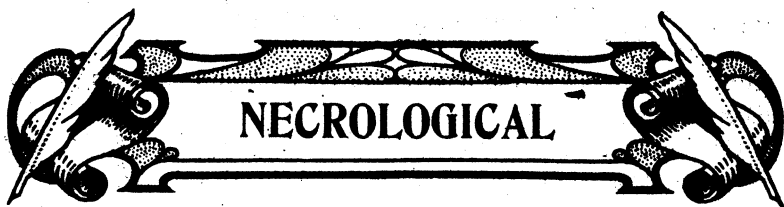
C. W. BRUNER, Secretary.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS

The annual meeting of the National Association of Dental Examiners will be held at the Iroquois Hotel, Buffalo, N. Y., commencing Monday at 10 a. m., July 24th, 1905, and continuing until adjournment. The rates per day for single rooms will be \$1.50, \$2.00 and \$2.50; \$3.00 and \$4.00 for double rooms; \$3.00 to \$3.50, rooms with bath. The sessions will be held in commodious rooms in the hotel. Write early and secure your rooms. Arrangements have already been made for members from the East for reduced excursion rates on the fast trains of the Delaware & Lackawana R. R., leaving New York 10 a. m., 8:45 p. m., 6:10 p. m. and 2 a. m. It is earnestly requested the secretaries of the boards will communicate at once of changes in members' names and addresses.

CHARLES A. MEEKER, D. D. S., Sec'y.

29 Fulton St., Newark, N. J.



DR. JAMES T. IRWIN

Dr. James T. Irwin, a retired dentist, died Feb. 21st at his home in Cincinnati, O. Some time ago he suffered a stroke of paralysis. He was 72 years of age. He leaves three sons. The funeral was conducted by the Masonic fraternity.

DR. W. L. ANDREWS

Dr. W. L. Andrews, a well-known dentist of Coldwater, Mich., and musical leader, died Feb. 12th.

Dr. Andrews had been ill for about two months and about one month ago he took a turn for the better, which led his physicians to express the hope that he would get well. A turn for the worse came, however, and he passed away.

Dr. Andrews had been a leader in musical circles as well as a leader in his profession for years and will be greatly missed.

DR. EDGAR CAMMACK

Dr. Edgar Cammack, of New York City, died at San Antonio, Texas, Feb. 8, where he had been for several months in hopes of benefiting his health. Death resulted from lung trouble. One year ago last month Dr. Cammack was taken ill at his home in New York City with the grip and never regained his health. The body was taken to Marion, Ind., his old home, for interment.

Dr. Cammack was 28 years of age. After one year's study in a dental college at Chicago he went to the Baltimore Dental college, where he was graduated in 1900. He went at once to New York City, where he engaged in the practice of his profession with splendid success. He there met and married Miss Katherine Harris, of Princeton, N. J. His wife was with him at the time of his death.

DR. JAMES LESLIE

Dr. James Leslie, scientist, inventor and educator, who for over 60 years was prominently identified with the educational growth of Cincinnati through the Ohio Mechanics' Institute, died Feb. 8th of pneumonia, at his home.

The death of Dr. Leslie removes an interesting figure whose life-

work was devoted to the interests of training and educating the artisan class.

Dr. Leslie was 87 years old. He had been declining in health for some time, since his retirement from the Board of Directors of the O. M. I., of which he was president for 12 years. He still attended the institute up to Christmas, but he realized then that his end was near. The last time he was in the institute was on the occasion of the Christmas entertainment given by the young women. There was a tree, and presents were hung on it for him. He was as happy as a child on that night. He was in full possession of his faculties up to the hour of his death. The last words he spoke were a message he sent: "Give my love to the boys of the institute."

Dr. Leslie was born in Edinburg, Scotland, in 1819. While a young man he became interested in the Birkbeck Institute of London and the institution in Edinburgh, which are conducted along the same lines as the Ohio Mechanics' Institute. He located in Cincinnati in the latter part of the thirties, and became one of the staunchest supporters of the institute. It is a notable fact that the institute at Cincinnati, the Cooper Institute in New York, and others of the same line of work, all had for their founders a class of vigorous Scotchman.

Dr. Leslie was a gold beater by trade, and made improvements in dental materials along scientific lines, and was the inventor of the process of the cohesion of gold as applied to dentistry. He later was a manufacturer of dental supplies. He was awarded a diploma by the Vienna Exposition, and the Ohio College of Dental Surgery conferred the degree of D. D. S. upon him.

He took a prominent part in economic and political movements, although he never held a political position.

The memory of Dr. Leslie is permanently identified with the institute through the naming of "Leslie Hall." The institute also possesses a bust of Dr. Leslie, made at the institute. This was presented to him at one of the commencement exercises.



MISCELLANEOUS

USE OF SOAPSTONE SLAB

Warm gutta-percha for filling and vulcanite for packing flask, on a soapstone slab. Heat it over vulcanizer lamp. It retains heat a long time. The cost is a trifle.—*Drs. Stansbury and Alexander, Lexington, Miss. Hints.*

TO REMOVE HYPERTROPHED PULP TISSUE PAINLESSLY

Saturate a pellet of cotton with adrenalin chloride, leave it in the cavity from 3 to 5 minutes. Remove this and replace it by a crystal of cocaine. Exert gradual pressure for one or two minutes. I achieved success with this method after all other means had failed. The patient was an extremely nervous child of eleven years of age.—*Dr. G. A. Neil, Forum.*

A VULCANIZED PIVOT CROWN

Choose a tooth with horizontal pins. Take a piece of 26 guage platinum wire, flatten one end and file notches on each side that it may be fitted in between the pins of the tooth, which should be bent over the wire, thus attaching it. Adjust properly to the root, filling the space between end of the latter and the facing, with wax, contouring to suit. Trim off surplus wax, invest in mould and remove wax. Pack with white rubber and vulcanize, trim and polish. By this process a perfect joint is made.—*Dr. J. F. Steele, Eagle Grove, Iowa. Hints.*

TO MAKE SHELL CROWNS

Make plaster model of shape desired, varnish and oil it. Make two half dies of it by means of molding ring and sand pack. Withdraw model and pour in babbitt metal. The thicker the molten metal the smoother the die. Drive one-half into lead, having oiled paper between die and lead. Now use a piece of thick tin foil or thin plate as you have the oiled paper, with piece of gold between it and die, drive home and turn up edges. File flat these wrinkled edges. Now, make the other half from other die the same way. Wire the two halves together, solder, dress down and polish.—*Dr. J. F. Steele, Eagle Grove, Iowa. Hints.*

CAVITY PREPARATION

Cardinal points in cavity preparation are—have cavity trough-shaped, its depth corresponding as nearly as possible to the size of contour to be obtained. Margins should be sharp, square, clearly defined, accurate and highly polished—never beveled. Marginal polish is obtained by using diamond, Arkansas or agate points. The

cavities should be so shaped that withdrawal of the matrix without change is positive. The approximal cavities in anterior teeth cut through lingual wall far enough to show inlay at lingual face. In proximo occlusal cavities of bicuspid and molars I often so groove the buccal and lingual walls through to the dorsal surface withdrawing matrix occlusally, as to interlock the inlay, which prevents its dislodgment by lateral strain. The deeper the cavity the better and safer the inlay.—*Dr. G. B. Mitchell, Ex., Digest.*

IMMUNITY OF THE TISSUES OF THE DENTAL CAVITY TO AUTOINFECTION

Dr. R. H. M. Dawbarn stated as his opinion that the explanation of the well known immunity of the tissues of the oral cavity to autoinfection lies in the fact that from birth until death the region under discussion is vaccinated, so to speak, with ptomaines and toxins, the products of the life activities and death decomposition of germs normal and native to that region; and that because of such vaccinations, the outcome of the numerous slight lesions so frequently occurring, the flesh thereabouts is in some way made better able to combat and overcome any ill results when greater wounds are received. Then, too, it is a fact worth noting that each healthy individual's saliva or fractures, though this secretion would be perilous to another individual. Probably the reason for this is the one already mentioned—a continual vaccination. We have all seen wounds upon the hands of street urchins sucked and washed clean by their spittle, just as a dog cleanses himself, with no ill result.—*Digest.*

THE USE OF FERRULE IN CROWNING

H. C. REGISTER.—I do not hesitate to say that there are as many, if not more, roots destroyed by crowning than are saved by it, because of the production of irritation, which induces gingivitis leading to pericementitis and the other ills that follow irritation. The ferrule should be used with extreme care. I very rarely, except in exceptional cases, let it run up above the gum at all. I prefer a plate of gold or platinum well fitted to the face of the root. Through this is passed the post of a crown, which has its labial edge nicely adapted to the labial part of the plate, while the lingual edge of the porcelain is well ground away, leaving a space between the crown and the plate. After being satisfied that everything is as correct as one can make it, simply catch it on the inside or outside with a quantity of phosphate of zinc. If using a gold plate, fill in the space with low-fusing porcelain body; bake it in the furnace, and it comes out a perfectly solid tooth with a little gold or platina termination, and the adaptation is exact. A plain plate tooth may be used if preferred. When in position on the root you have not got the ring or ferrule under the gum to act as an irritant. The festoon of the gingiva will become normal. The chief use of the ferrule is to prevent the root from splitting.—*Dr. H. C. Register, Extract, International.*

Personal and General

Johnson-Redman—Dr. J. H. Johnson, a well known dentist of Albion, Ind., and Miss Marguerite Redman, of Youngstown, O., were married Dec. 28th, at the bride's home.

Injured by Fall—Dr. D. E. Delzell, a dentist at Logansport, Ind., is confined to his home with concussion of the brain, the result of a fall sustained upon the slippery pavement. His condition is critical.

Jo Daviess County—The annual meeting of the Jo Daviess County Dental Society was held in Dubuque Jan. 24th, with most of the members present. The clinics were held at the office of Dr. H. R. Thill.

Patient Swallows Bur—A Louisville minister, while in a dentist's chair recently, swallowed an engine bur which became loosened from the handpiece. The clergyman has been subjected three times to the X-ray unsuccessfully.

Changes in Rhode Island Dental Board—Forest G. Eddy and Walter S. Kenyon, of Providence, were appointed as members of the State Board of Dentistry to succeed Robert L. Davis, of Woonsocket, and Dennis F. Keefe, of Providence.

Will and Grundy County—At a meeting of dentists in Joliet the Will and Grundy County Dental Association was organized. About 27 dentists attended the clinic in the afternoon and afterwards enjoyed a banquet at Hobb's cafe. The following officers were elected: President, Dr. Duncan, Joliet; vice-president, Dr. Cheessman, Joliet; secretary, Dr. Brunson, Joliet; treasurer, Dr. Foster, Lockport.

El Paso County—The members of the El Paso County Odontological Society held their monthly banquet at the Alta Vista hotel Jan. 13th. The supper was served at 6:30 o'clock and was followed by the monthly meeting held in the hotel parlors. Dr. F. S. McKay read an interesting paper on "Some Points Relative to Dental Caries," which was followed by a general discussion in which Prof. F. C. Schneider, of Colorado College, led.

The Army Dentist—Surgeon Samuel W. Hussey has received orders from the war department to report at San Francisco on March 1 to sail for the Philippines on the transport Sherman. Dental Surgeon Charles J. Long, now on leave of absence in the East, will be his successor at Fort Snelling.

Lackawanna and Luzerne Dental Society—The annual banquet of the Lackawanna and Luzerne Dental Society was held in the Wyoming Valley hotel, Wilkes-Barre, Jan. 17. Dr. L. F. Mills, of Nanticoke, was the toastmaster. Dr. E. M. Green, of this city, read an original poem, and Dr. J. J. Brogan read a paper on "Organization." An address was also given by Dr. O. B. Richards, of Moosic.

THREE MYSTERIOUS STRANGERS



The above is from photograph of three mysterious strangers observed at a prominent hotel in St. Paul recently. The one on the left is supposed to be a great Russian Statesman, the one on the right a noted Japanese Commander, and the one in the center, J. Pierpoint Morgan. The object of the meeting of these very prominent men has caused much speculation, but was probably for the purpose of arranging peace plans between the two Countries, and a guarantee of war indemnity by the great American financier. It is a remarkable coincidence that these mysterious strangers were in St. Paul at the same time the meeting of the G. V. Black Dental Club was being held, and a slight resemblance may be observed by close inspection, to three prominent and well loved Chicago Dentists.

Removed—William J. Thorson, from South Bend, Ind., to Chicago; C. H. and J. B. Harmon, from Creston, Iowa, to Des Moines; L. B. McLaurin, from Fayette, Miss., to Natchez; D. Keene Davis, from South Boston, Va., to Marion, S. C.; R. J. Low, from Capron, Ill., to Shabbona; D. R. Dudley, from Garden Grove and Leon, Ill., to Independence, Mo., later to Mt. Ayr, Iowa; B. C. Brown, from Aberdeen, S. D., to Eveleth, Minn.; Geo. Steel, from Adrian, Mich., to South Bend, Ind.; Harry Clark, from Milwaukee, Wis., to Hartland, Wis.

Dr. J. G. Oldwein, from New Boston, Ill., to Plano, Ill.; Dr. James T. Anderson, from Vasa, Minn., to Axtell, Neb.; Dr. Britzius, from St. Cloud, Minn., to Rockford, Ill.; Dr. J. K. Means, from Pontiac, Ill., to Jacksonville, Ill.; Dr. C. E. Klopp, from Chicago, Ill., to Kempton, Ill.; Dr. L. T. Davis, from Le Sueur, Minn., to Granite Falls, Minn.; Dr. J. A. West, from Creston, Ia., to Des Moines, Ia.; Dr. Schuhman, from Hartford, Wis., to Milwaukee, Wis.

WANTED

One-half interest in established advertising Dental Parlor. In city of 20,000. Must not be afraid of work. Address T., American Dental Journal.

WANTED

Practice and furniture in good Illinois town of 20,000. Cash income last year over \$3,000. Address S. D., American Dental Journal.

WANTED

Sanitol chemical stock. Address L-3, American Dental Journal.

